JUN 14 1982

Y3.N88:25/2639

NUREG/CR-2639

COMPLETED
162

ORIGINAL

Historical Extreme Winds for the United States - Atlantic and Gulf of Mexico Coastlines

Prepared by M. J. Changery

National Oceanic and Atmospheric Administration

Prepared for
U.S. Nuclear Regulatory Commission

NUREG/CR-2639
HISTORICAL EXTREME WINDS FOR THE UNITED STATES - ATLANTIC AND GULF OF MEXICO COASTLINES
MAY 1982

NOTICE

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, or any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus product or process disclosed in this report, or represents that its use by such third party would not infringe privately owned rights.

Available from

GPO Sales Program
Division of Technical Information and Document Control
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Printed copy price: $6.00

and

National Technical Information Service
Springfield, Virginia 22161

BEST DOCUMENT AVAILABLE

NUREG/CR-2639
RB

Historical Extreme Winds for the United States - Atlantic and Gulf of Mexico Coastlines

Manuscript Completed: April 1982
Date Published: May 1982

Prepared by
M. J. Changery

National Climatic Center
National Oceanic and Atmospheric Administration
Federal Building
Asheville, NC 28801

Prepared for
Division of Health, Siting and Waste Management
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN B1031

BLANK PAGE

ABSTRACT

Annual fastest mile wind data were extracted for the complete period of record for 53 locations along the Atlantic and Gulf of Mexico coastlines. Existing models were used to standardize the data to 10 meters for airport-type exposures and 30 meters for city exposures. Selected probability estimates were developed from application of the Fisher-Tippett Type I extreme value model for non-tropical storms and the Weibull model for tropical storms. A mixed distribution was used for locations with a significant percentage of annual extremes caused by tropical storms.

BLANK PAGE

CONTENTS

Page

Abstract iii
I. Introduction 1
II. Instrumentation History 1
III. Measurement of Extreme Wind Speed 3
IV. Categorization of Station Exposures 5
V. Height Reduction 6
VI. Statistical Analysis 8
VII. Station Data and Return Period Values 14
VIII. Summary 150
IX. Acknowledgements 150
References 151

BLANK PAGE

Illustrations

Page

Figure 1. Station locations 11

Figure 2. City Office exposure - extreme annual wind speed for the .99 probability level (100-year return period) at 30 meters above ground level 12

Figure 3. Airport type exposure - extreme annual wind speed for the .99 probability level (100-year return period) at 10 meters above ground level 13

I. INTRODUCTION

In modern building codes and standards, basic design wind speeds are specified in probabilistic terms. For any location with wind records, a random variable consisting of the yearly extreme wind speed is defined. The probabilistic behavior of these extremes can be estimated from the cumulative distribution function of this variable. Any design wind speed is a speed corresponding to a specified mean recurrence interval. A 50-year mean recurrence interval is specified by the American National Standard Institute (ANSI) Standard A58.1-1972 for permanent structures except those with an unusually high or negligible hazard to life. This Standard also assumes that the Type II distribution best models the probabilistic behavior of the winds.

The Standard is undergoing a revision utilizing additional years of available data. It includes only airport data for the general period of record 1945-1977, and assumes a Type I distribution. Earlier city office data were excluded since they were obtained for city locations not considered representative of an open, unobstructed environment.

An area of the United States subject to frequent occurrences of extreme winds is the Atlantic and Gulf of Mexico coastline. This area is subject to tropical storm winds during the hurricane season and extratropical storm intensification during the late autumn to early spring season. The combination of frequent severe storms and the flat, open terrain of the coastline produces the highest design wind regime in the continental United States.

Researchers and designers could best model the extreme wind behavior of the coastline if all historical wind data were available for analysis. This includes city office data useful for modeling the urban environment and additional coastal locations with unobstructed surroundings similar to airport environments. In this study, all available annual extreme wind data along, and within 100 miles of the coastline, will be extracted, verified, and reduced to a standard height. Appropriate extreme value models will be used to develop design wind speeds for selected return periods.

II. INSTRUMENTATION HISTORY

A. Contact Anemometer.

The rotating cup, contact-type anemometer has been used by the National Weather Service (and its predecessor agencies, the Weather Bureau, and Army Signal Corps) since its introduction in 1870. Although supplemented, or replaced, by the magneto-type anemometer for aviation purposes in the 1930's, the contact-type instrument measures speed such that an extreme useful to engineers can be extracted. This instrument utilizes three or four hemispherical cups mounted on supporting arms attached to a vertical spindle. Wind speed is determined by counting the number of miles of wind passage (based on the circumference distance of the cup wheel) per unit of time on either a mechanical dial or chart-recording mechanism. Each of the four types of contact anemometers used since 1870 will be discussed in the following sections. Abbreviations following the anemometer type are used in the data listings.

1. Four-Cup Anemometer (4c). This instrument was initially introduced in 1870, used through 1927, and utilized four-inch diameter cups mounted on arms ∿ 6.7 inches in length. As with all instruments of this type, the indicated speed needed to be corrected to a "true" speed. Although the speed overrun is considerable for the four-cup, especially at the higher speeds, available correction tables were not used for extracted and/or published data. All data recorded prior to 1928 require the necessary four-cup corrections before use in any analysis. The four-cup was reintroduced at most locations in 1932 with all readings corrected to true values before being entered in the official manuscripts. During the 1940's, it was generally replaced by the three-cup (mentioned next), but did remain in use at a few locations through the 1960's.

2. Three-Cup Anemometer (3c). Considerable research directed to an improved wind-measuring system during the 1920's led to the introduction of the three-cup instrument in 1928. This instrument (8) utilized five-inch cups mounted on arms ∿ 6.3 inches in length. Tests indicated more uniform torque on the three-cup with considerably smaller departures from the true wind. At the time the three-cup was introduced in 1928, it was assumed that the three-cup ran so close to the true that no corrections were necessary. Users of manuscript data for the period 1928-1931 should, however, correct the data using available three-cup correction tables. Although replaced by the four-cup for a number of years beginning in 1932, the three-cup was gradually reintroduced and all readings were corrected to true before being entered in official records. Nearly all locations currently equipped with contact anemometers use the three-cup instrument.

3. Four-Cup Beaded Anemometer (4c-b). Additional research during the early 1930's led to the discovery that a bead produced by rolling the cup edge outward produced a more responsive instrument (9). The primary finding was that all cup forms tend to overrun in a turbulent windstream and that the effect is considerably reduced with a beaded anemometer. For unknown reasons, this advantage was never incorporated into the standardized three-cup contact anemometer. A limited number of stations did use a beaded four-cup system for a number of years.

4. Four-Cup Experimental Anemometer (4c-x). A unique four-cup instrument was also developed in the 1930's with beaded edges and a special gearing such that the anemometer ran within two miles per hour of the true wind over the complete range of interest. This instrument was used at only a few locations for a limited number of years.

5. Three-Cup Odometer (3c-o). This instrument was installed at Baltimore for a few years around 1950. No correction to true speed was necessary.

B. Single or Multiple Register Recording System.

Special instruments were used at selected locations to record the passage of each mile of wind. The earliest instruments (single register) recorded wind data only; the multiple register recorded wind, precipitation, and sunshine data. Current instruments record data on a continuous paper strip. Prior to the 1960's, 24 hours of data were recorded on a chart wrapped on a drum, which rotated four times during the period. Each of the four horizontal lines on the drum represented six hours of data. With the passage of each mile of wind, a pen arm made a short mark perpendicular to that of the pen traverse. The number of such marks within any one-hour period provides the actual hourly wind speed.

III. MEASUREMENT OF EXTREME WIND SPEED

A. Definition of Terms.

The daily fastest mile is defined as the speed equivalent of the shortest distance (and, therefore, least time) between any two adjacent mile marks recorded in a 24-hour period. As an example, if two marks occurred within one minute of each other, the mile per minute is converted to a 60-mile/hour fastest mile. Similarly, if the two marks are two minutes apart, the one mile in two minutes is converted to 30 miles/hour. In practice, station personnel utilize a special scale to determine the mile/hour equivalent of the visually determined two closest marks in any 24-hour period.

B. Fastest Mile History.

An early measure of the wind extreme was the daily fastest mile previously defined. Within the last 40 years, it has been supplemented or replaced by the (visually estimated) one-minute maximum or peak gust obtained from the standard dial-type anemometer. Its advantage, then and now, was that it was a speed which occurred at a known time interval (30 to 90 sec) obtained from a recorded continuous trace.

This measurement was initially extracted at stations with a recording instrument in July 1887 on a daily basis and continued through 1904. After a seven-year hiatus, it was again extracted beginning in 1912. These daily extracted data were included on appropriate manuscript forms. Although it was not extracted prior to July 1887, available charts as early as 1872 provided a source from which measurements could be made.

C. Extraction of the Fastest Mile.

The initial aim of this report was to extract as large a set of annual fastest mile data for all available locations. To include all data, the following procedures were used:

1. For the stations of interest, published annual extremes (obtained by ordering the daily values) were checked against the original trace charts. Readings judged reasonably accurate (± 2 mph) were left unchanged due to the subjectivity involved in using the measuring scale. Many cases required adjustment to a higher value. For values determined to be too high, the adjusted extreme was compared to the next highest published value. If the next highest was larger than the adjusted, it was checked for accuracy and accepted as the annual extreme if reasonably accurate. Otherwise, succeedingly lower extremes were checked until one was found to be accurate.

2. For the period of record through June 1887 and for 1905-1911, fastest mile data were not extracted on station. Another measurement (five-minute maximum) was extracted and published. The annual five-minute maximum provided the highest five-minute speed for the year and proved to be a guide to the occurrence of the extreme fastest mile. It might be expected that the annual extreme fastest mile would occur at the time of the annual extreme five-minute maximum. Under certain conditions (such as thunderstorm-related winds), however, an extreme fastest mile could be included in a five-minute period with lower speed than the published annual extreme five-minute maximum.

In order to verify the assumption that the two events occur simultaneously, a test was run for six locations for the period 1912-1950. For each station-year a comparison was made of:

(a) The frequency of simultaneous occurrences of the annual extreme fastest mile and annual extreme five-minute maximum.

(b) The frequency of simultaneous occurrences of the annual extreme fastest mile and one of the 12 monthly extreme five-minute maxima.

As shown in Table 1, out of the total sample of 232 station years, 223 occurrences of the fastest mile occurred on one of the 12 published dates of monthly five-minute maxima.

Table 1. Number of simultaneous occurrences of extreme fastest mile; and, (a) annual maximum, and (b) one of 12 monthly maxima.

	Number Years	Extreme Maximum (Annual)	Extreme Maximum (Monthly)
Boston, MA	38	28	38
Cape Henry, VA	39	31	38
Charleston, SC	39	27	39
Corpus Christi, TX	39	34	37
Mobile, AL	38	27	33
Pensacola, FL	39	28	38

This indicates that the dates of available monthly maxima can be used as a reliable guide to the date of the annual extreme fastest mile. Thus, for stations in this period without extracted extremes, an extreme was calculated at the occurrence of each published monthly maximum. This probable monthly extreme was used as a base in visually checking the remainder of the daily charts for that month. This procedure was followed for each month in order to determine the true annual extreme fastest mile.

3. For a few stations, no fastest mile or five-minute data have been extracted. For these, a visual check of all daily charts for each year was required. This was accomplished by determining an extreme for January (normally one of the windier months) and using this as a guide in visually reviewing daily charts for each succeeding month until a higher extreme was determined. This new value was then used in reviewing succeeding charts. By using some measure of extreme wind as a guide, the majority of daily charts could be eliminated with only a cursory glance. Through this process an annual extreme was determined.

IV. CATEGORIZATION OF STATION EXPOSURES

A. Boundary Layer Effects.

Proper utilization of extracted fastest mile data requires a suitable categorization be made into specific exposure types. Under normal meteorological conditions, the frictional effects of the earth's surface reduces the speed of the wind near the surface and introduces mechanical turbulence. A very rough surface, such as the urban environment, affects the near-earth layer to a much greater degree than a relatively smooth open ocean or coastal environment. The large roughness elements present in a city increase the frictional drag exerted on the airflow and extend the effect through a deeper layer of the atmosphere. Current techniques for estimating the wind at a given elevation within this disturbed layer from a known wind at another elevation requires an assessment of the roughness elements surrounding the known site. These techniques are discussed in Section V. Categorizing the station exposures ensures that the proper parameters are used in standardizing each data set to a standard height. Known features associated with particular types of exposures can be clarified, eliminating the problem of combining non-homogeneous data sets.

B. Station Types.

Stations extracted and analyzed in this report were categorized into four basic types of exposures. Abbreviations following the station-type name are used in the data listings.

1. Weather Bureau Office (WBO). Multiple registers were installed in most large metropolitan areas in the 1870-1890 period. These, and their attendant anemometers, were located on Federal facilities or large commercial buildings (banks, etc.) near, or in, the center-city area. The anemometers were installed on 12 to 20 foot (or frequently higher) masts atop the facilities. Most locations experienced frequent moves in the center-city area with the instruments usually placed at increasing above-ground elevations due to the increase in tall-building construction. An assumption made in this study is that the average building height surrounding the instrument within one-half mile in all directions is approximately .75 that of the instrument. The preferred method (not possible within the limited resources available for this study) would be to obtain historical profiles of the city skyline in a number of directions to better model the urban influence over time and by wind direction. However, the assumption that officials responsible for

locating the instruments would choose an unobstructed open exposure (higher than most of the surrounding skyline) is reasonable. Most WBO instruments were relocated to an airport exposure in the 1935-1950 period.

2. Airport (APT). Relocated WBO instruments were initially placed on airport control towers or terminal buildings. Instrument heights ranged from 60 to 100 feet above ground. By the early 1960's, they were again relocated on masts near the runways at a 20 to 25 foot elevation. Due to the obvious requirements for an airport environment, exposure is considered to be open and unobstructed in all directions.

3. Weather Bureau Office (WBO*). Many sites were (and are) located in flat, open terrain along the coastline. These were at lighthouses and lifesaving stations -- somewhat equivalent to coast guard stations today. Terrain exposure at most locations can be considered to be less obstructed than airport locations.

4. Weather Bureau Office (WBO**). A few sites were located in small communities. Although located in an urban environment, surrounding structures were limited in vertical extent and did not extend as far upwind as at a WBO site. These smaller roughness elements affected the airstream to a smaller degree than those in a true urban environment and were included in an intermediate category.

V. HEIGHT REDUCTION

A. Exposure-Type Reductions.

Reduction of recorded wind speeds to a standard elevation is necessary in order to ensure the data's meteorological homogeneity. However, differences in the complexity of windflow over urban and rural areas prohibit combining both locations into one set. Combining urban and rural data into a set useful to designers/engineers is a problem which remains to be solved. Because of this problem, only airport and WBO* stations are considered to have similar surrounding surface features and both are reduced to a 10-meter standard height. WBO** stations are all reduced as a class to 10 meters also. The assumption made is that although the flow is disturbed more so than at an airport location, the small surface elements do not introduce complexity to the near surface flow. All WBO stations have been reduced to a 30-meter height. The large-scale obstructions increase the turbulent flow and also cause significant accelerations or decelerations at ground level dependent on building orientations. For these reasons a 10-meter standard height would not be useful or accurate and a 30-meter height would be more representative of the disturbed, but not unduly complex, flow regime over urban areas.

B. Height Reduction Techniques.

The wind profile near the earth's surface in homogeneous terrain is given by the logarithmic law in the form:

$$V(z) = \frac{\log \frac{z-z_d}{z_o}}{\log \frac{10}{z_o}} V(10) \qquad (1)$$

where z is the anemometer height above ground,
10 is the standard height,
V(10) is the speed at standard height
z_o is the roughness length, and
z_d is the zero plane displacement;
all expressed in meters.

Although the power law

$$V(z) = \left(\frac{z}{10}\right)^{\eta} V(10) \qquad (2)$$

where η ranges from 1/2 to 1/7 depending on exposure,

has also been used extensively by researchers in modeling the near-ground wind profile, a number of sources (2, 11) indicate, however, that the logarithmic law provides a superior representation of this profile.

The zero-plane displacement is zero except for urban areas (WBO and WBO** designated sites) where the smaller of 20 meters or .75 $\bar{H}$ (where $\bar{H}$ is the average height of surrounding buildings) is used (13). For WBO and WBO** sites, the zero-plane adjustment was made with the assumption that $\bar{H}$ was .75 of the anemometer height. Such estimates are necessary without accurate assessments of building heights surrounding the instrument. For this report then, z_d is the smaller of 20 meters or .5625 of the anemometer height at WBO and WBO** sites.

The roughness (Z_o) is derived from a classification scheme of terrain features surrounding a given site. Table 2 gives some suggested values (12).

Table 2. Values of Z_o for various exposure types.

Exposure	Z_o (Meters)
Coastal	.005-.01
Open	.03-.10
Outskirts of towns	.20-.30
Town center	.35-.45
City center	.60-.80

Based on Table 2 and the exposure categorization scheme developed in Section IV, values of Z_o used in this study are:

WBO $Z_o = .7$ meters
WBO** $Z_o = .4$ meters
WBO*, APT $Z_o = .05$ meters

The logarithmic law is considered valid for mean winds measured over an interval of approximately one hour. Simiu (15) developed a relationship

$$V(10) \approx V(z) \frac{\log \frac{10}{z_o}}{\log \frac{z-z_d}{z_o}} \left(1 + \frac{z-10}{10} .02\right) \tag{3}$$

considered more appropriate over the time range (30 to 90 seconds) consistent with the speed range of fastest mile measurements.

Equation 3 is used to standardize reported and extracted winds to a 10-meter height. Substituting the value 30 for the 10 in Equation 3 yields the 30-meter standardized winds. It should be noted again that WBO and airport data sets for a given location are treated as separate sets with WBO and airport data reduced to 30 meters and 10 meters, respectively.

VI. STATISTICAL ANALYSIS

For each station, the methods described in Section V provide standardized values of the annual extreme fastest mile for each year of the period of record. This set of annual extremes is most appropriately analyzed by fitting an extreme value distribution to the data. These have been extensively studied by Gumbel (3, 4) and Lieblein (5, 6, 7). Two such distributions, known as the Type I and Type II are given by:

$$F_1(x) = \exp\{-\exp[-(x-\alpha)/\sigma]\} \tag{4}$$

and

$$F_{\underline{11}}(x) = \exp\left[-\left(\frac{(x-\alpha)}{\sigma}\right)^{-\gamma}\right] \tag{5}$$

where $F(x)$ is the probability that an observation will be equal to or less than a value X,
α is the mode,
σ is the scale parameter, and
γ is the tail length parameter.

The Type II may actually be shown to be a logarithmic transformation of the Type I.

Although the Type II has been used extensively by Thom in the ANSI 58.1 Standard (16, 17), other investigators have demonstrated that the Type I is the more appropriate distribution to use (14, 15).

Equation 4 may also be written

$$F_1(x) = \exp\,[-\exp\,(-y)] \qquad (6)$$

where y is a reduced variate similar to the standardized variate of the normal distribution.

Estimation of extreme values for a given probability can be derived from

$$U_\rho = \alpha + Y_\rho \beta \qquad (7)$$

where U_ρ is the extreme value at probability level ρ, and Y_ρ is the corresponding reduced variate.

The best linear unbiased estimates of α and σ are computed from Lieblein's order statistic approach (5, 6, 7) and used in determining the estimated extreme value. The methodology used divided each data set into subgroups containing between 8 and 15 elements with the larger chosen if more than one was possible. If it was not possible to produce a whole number of subgroups, then the remainder group was chosen such that the element number was maximized. For example, a data set with 40 elements was divided into 4 subgroups of 10 each although 5 subgroups of 8 each was also possible. A data set of 38 was divided into 2 subgroups of 13 each with a remainder group of 12. This maximization technique provided the subgroup and remainder group sizes used in Lieblein's approach.

The foregoing assumes that all storm types in a given sample have essentially the same distribution. A number of sources (1, 18) indicate however, that tropical storms have essentially different distributions of extreme winds than non-tropical storms. In order to determine whether an annual extreme was associated with a tropical storm, occurrences during the "hurricane season" (May-November) were checked against a number of products. Published hurricane tracks (10) were used to verify storm centers on the date in question. For possible dates, available manuscript records in paper and microfilm form were scanned for tropical storm-related remarks. For questionable dates, published surface analyses (19) were examined. Although estimation of the periphery of storm circulations can be subjective, for this report the boundary was assumed to coincide with the first closed isobar depicted in the analyses. Both storm types may be considered to form a mixed population with p_n, the probability of non-tropical storms; and, p_t, the population of tropical storms, such that $p_n + p_t = 1$. This yields a mixed distribution function for the composite speed regime.

According to Batts (18), tropical storm-associated extremes are best fitted by the Weibull distribution:

$$F_w(x) = \exp\,\left(\frac{x-\alpha}{\sigma}\right)^\eta \qquad (8)$$

where η is the shape parameter.

Thus, the mixed distribution function is

$$C(x) = p_n F_1 (x) + p_t F_w (x) \tag{9}$$

where p_n and p_t are the probabilities of non-tropical and tropical winds, respectively;
$F_1(x)$ is the Type I distribution fitting non-tropical storms; and,
$F_w(x)$ is the Weibull distribution fitting tropical storms.

Assuming at least five extremes were tropical associated (a limiting number in the program), separate Weibull and Type I distributions were determined and the appropriate mixed distribution calculated. For any station with fewer than five values associated with tropical storms, all extremes were fitted using only the Type I distribution. For the report, extreme value estimates were made for the following probability levels (return periods): .5 (2 year), .8 (5 year), .9 (10 year), .95 (20 year), .96 (25 year), .98 (50 year), .99 (100 year), .995 (200 year), .998 (500 year), and .999 (1000 year).

Figure 1 depicts the stations used in this report with Figures 2 and 3 containing data for the .99 probability level for City Office (30m) and Airport (10m) locations, respectively. The short period of record for some locations provides possibly unrepresentative return period estimates. These stations are so noted. Part VII of this report contains detailed station data and the return period estimates for all calculated probability levels.

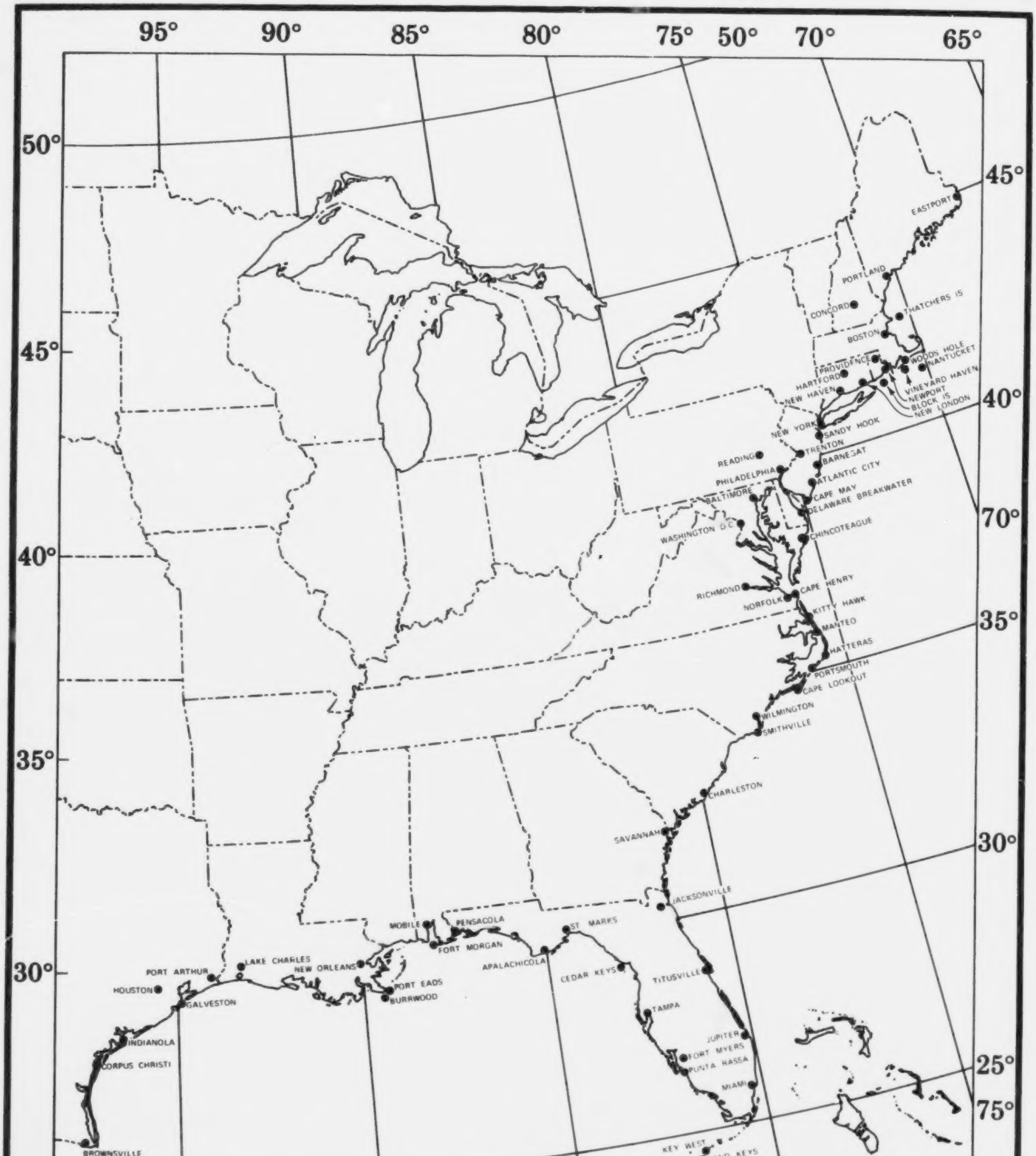

95°
90°
85°
80°
75°
50°
70°
65°
50°
45°
40°
35°
30°
25°
45°
40°
70°
35°
30°
25°
75°
EASTPORT
PORTLAND
CONCORD
THATCHERS IS
BOSTON
PROVIDENCE
HARTFORD
NEW HAVEN
WOODS HOLE
NANTUCKET
VINEYARD HAVEN
NEWPORT
BLOCK IS
NEW LONDON
NEW YORK
SANDY HOOK
TRENTON
READING
BARNEGAT
PHILADELPHIA
ATLANTIC CITY
BALTIMORE
CAPE MAY
DELAWARE BREAKWATER
WASHINGTON D.C.
CHINCOTEAGUE
RICHMOND
CAPE HENRY
NORFOLK
KITTY HAWK
MANTEO
HATTERAS
PORTSMOUTH
CAPE LOOKOUT
WILMINGTON
SMITHVILLE
CHARLESTON
SAVANNAH
JACKSONVILLE
MOBILE
PENSACOLA
FORT MORGAN
ST. MARKS
APALACHICOLA
CEDAR KEYS
TITUSVILLE
PORT ARTHUR
LAKE CHARLES
NEW ORLEANS
HOUSTON
GALVESTON
PORT EADS
BURRWOOD
TAMPA
JUPITER
FORT MYERS
PUNTA RASSA
MIAMI
INDIANOLA
CORPUS CHRISTI
BROWNSVILLE
KEY WEST
SAND KEYS
95°
90°
85°
80°

Figure 1. Station Locations

BEST DOCUMENT AVAILABLE

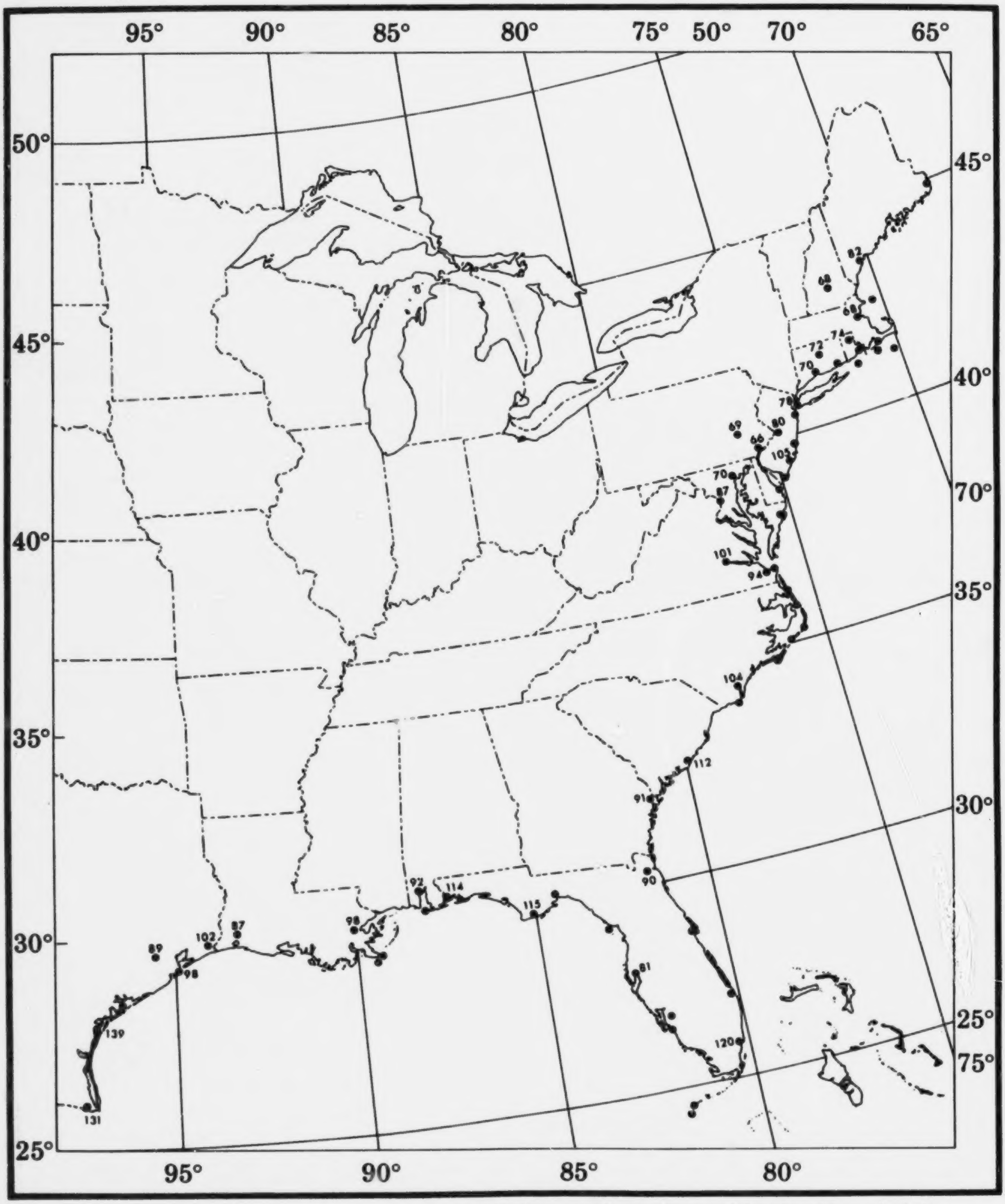
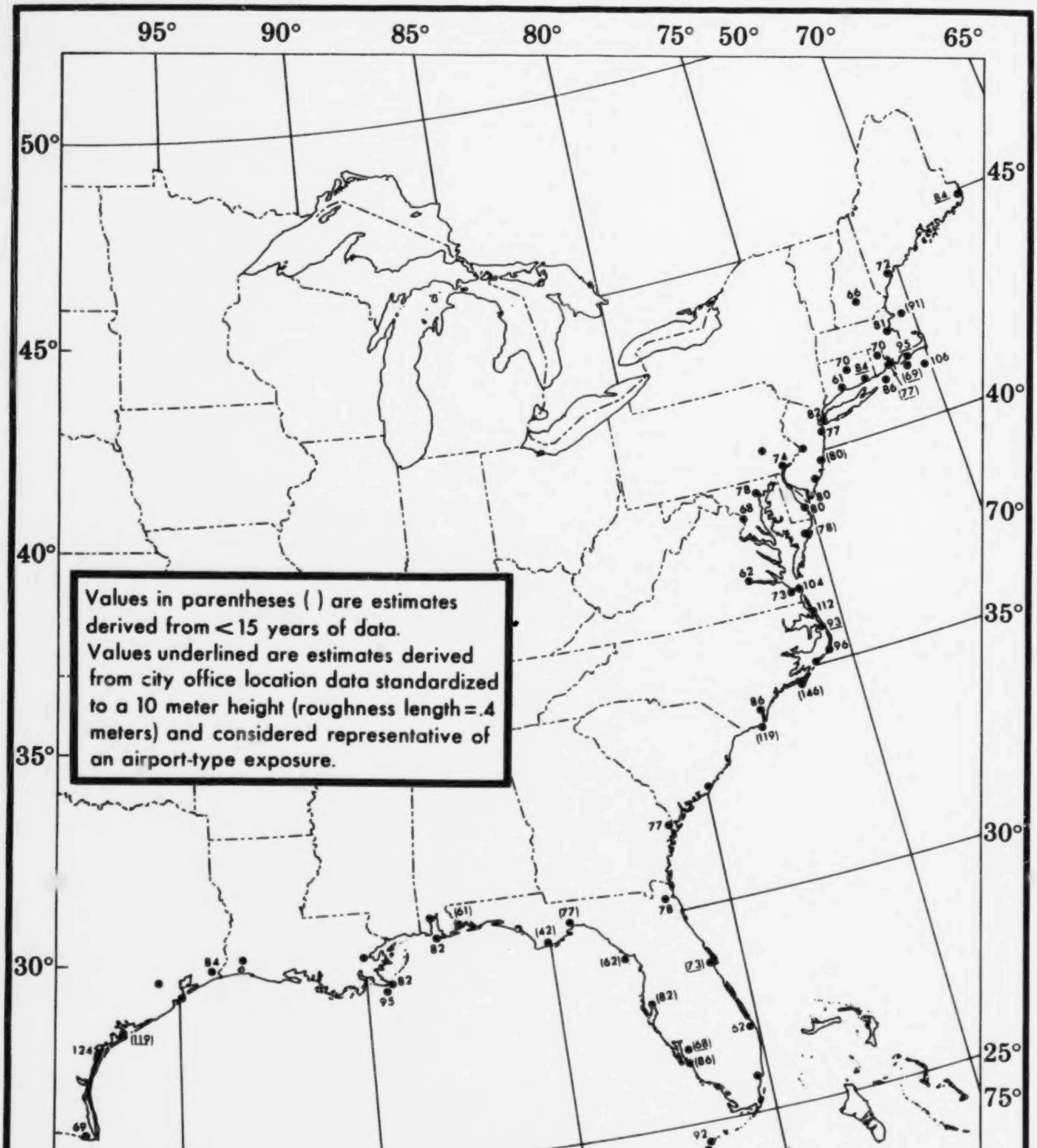

95°
90°
85°
80°
75°
50°
70°
65°
50°
45°
40°
35°
30°
25°
45°
40°
70°
35°
30°
25°
75°
95°
90°
85°
80°
82
68
68
74
72
70
78
69
80
66
103
70
87
101
94
104
112
91
90
92
114
115
98
87
102
89
98
81
120
139
131

Figure 2. City office exposure-extreme annual fastest mile wind speed for the .99 probability level (100-year return period) at 30 meters above ground level.

BEST DOCUMENT AVAILABLE


95°
90°
85°
80°
75°
50°
70°
65°
50°
45°
40°
35°
30°
25°
45°
40°
70°
35°
30°
25°
75°
84
72
66
(91)
81
70
95
70
84
106
61
(69)
86
(77)
82
77
(80)
74
78
80
68
80
(78)
62
104
73
112
93
96
(146)
86
(119)
77
78
(61)
(77)
82
(42)
(62)
(73)
(82)
62
(68)
(86)
92
78
84
82
95
(119)
124
69

Values in parentheses ( ) are estimates derived from < 15 years of data. Values underlined are estimates derived from city office location data standardized to a 10 meter height (roughness length = .4 meters) and considered representative of an airport-type exposure.

Figure 3. Airport type exposure-extreme annual fastest mile wind speed for the .99 probability level (100-year return period) at 10 meters above ground level.

BEST DOCUMENT AVAILABLE

VII. STATION DATA AND RETURN PERIOD VALUES

The following pages provide annual extreme wind data, anemometer data and selected return period values. Locations are in city order within each state. Each location provides:

1. STATION NAME - Includes 3-letter station identifier and 5-digit identification number where applicable.

2. EXPOSURE TYPE.
WBO $Z_o = .7$
WBO** $Z_o = .4$
WBO* $Z_o = .05$
APT $Z_o = .05$

3. STORM PROBABILITY - Proportion of listed annual extreme winds associated with non-tropical (p_n) and tropical (p_t) storms. Provided for locations with a minimum of 5 tropical storms during period of record.

4. PERIOD OF RECORD.

5. LATITUDE, LONGITUDE - In degrees-minutes.

6. MEASURED SPEED - Uncorrected speed extracted from register charts. An "E" preceding indicates estimated speeds. MISSING is self-explanatory.

7. TRUE SPEED - Measured speed corrected to true using appropriate tables for each anemometer type (Item 11).

8. SPEED AT STANDARD HEIGHT - Speed standardized to 10 meters (WBO*, WBO**, APT) or 30 meters (WBO) using appropriate roughness lengths.

9. DIRECTION - To eight compass points. UNK indicates unknown directions.

10. STORM TYPE - A "T" indicates tropical storm. Blank indicates non-tropical storm.

11. ANEM TYPE -
4c = 4 cup anemometer
4c-b = 4 cup beaded anemometer
4c-x = 4 cup experimental anemometer
3c = 3 cup anemometer
3c-o = 3 cup odometer.

12. ANEM HT - Numbers indicate height of the instrument above ground level. Preceding "E" indicates an estimated height based on:

a. The first known instrument height and assuming this height existed from the beginning of the period of record, or

b. A 50-foot elevation for locations with no available data. Most nonurban sites were instrumented at approximately this height early in their record history.

Following "R" indicates instrument mast is roof mounted. Following "G" indicates instrument mast is ground mounted.

13. REMARKS - Consecutive numbers for each year necessitating remarks with self-explanatory notes listed after the data set.

FORT MORGAN, ALABAMA WBO* z_o=.05 P_n=.79 1883-1921 30 15 88 01
P_t=.21

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/26/1883	59	46	43	UNK		4c	E50R	1
01/04/1884	67	52	49	UNK		"	"	
11/12/1885	66	51	48	UNK		"	"	
11/06/1886	81	62	58	UNK		"	"	
01/26/1887	118	89	83	UNK		"	"	
1888	MISSING							
1889	MISSING							
1890	MISSING							
1891	MISSING							
12/26/1892	68	53	50	UNK		"	"	2
10/02/1893	76	59	55	UNK	T	"	"	
10/08/1894	94	72	67	UNK	T	"	"	
02/07/1895	62	49	46	UNK		"	"	
07/07/1896	82	63	59	UNK	T	"	"	
03/31/1897	60	47	44	UNK		"	"	
01/01/1898	60	47	44	UNK		"	"	3
04/21/1899	50	40	37	UNK		"	"	4
03/19/1900	60	47	44	UNK		"	"	
08/15/1901	80	62	58	UNK	T	"	"	
11/25/1902	64	50	47	UNK		"	"	
02/16/1903	67	52	49	UNK		"	"	
12/10/1904	76	59	55	UNK		"	"	
10/11/1905	60	47	44	UNK		"	"	
09/27/1906	100	76	71	UNK	T	"	"	5
1907	MISSING							
10/08/1908	51	41	38	UNK		"	"	6
08/19/1909	68	53	50	UNK		"	"	
10/27/1910	50	40	37	UNK		"	"	
11/12/1911	62	49	46	UNK		"	"	7
11/27/1912	58	46	43	UNK		"	"	
01/02/1913	62	49	46	UNK		"	"	
09/24/1914	60	47	44	UNK		"	"	
06/25/1915	64	50	47	UNK		"	"	
07/05/1916	82	63	59	UNK	T	"	"	
09/28/1917	89	68	64	UNK	T	"	"	8
07/19/1918	58	46	43	UNK		"	"	
02/15/1919	44	35	33	UNK		"	"	
12/06/1920	76	59	55	UNK		"	"	
05/13/1921	49	39	37	UNK		"	"	9

REMARKS:

1. Begins 6/2
2. Begins 4/26
3. Ends 10/19
4. Begins 3/1
5. 3 mo. missing
6. Begins 6/15
7. True Extreme on 4/11-Anemometer lost in squall-no record
8. 3 mo. missing
9. 4 mo. missing

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	62
.90	10	66
.95	20	70
.96	25	72
.98	50	76
.99	100	82
.995	200	89
.998	500	98
.999	1000	106

MOBILE, ALABAMA (MOB) WBO z_o=.7 P_n = .75 1873-1952 30 42 88 02
WBAN #93855 P_t = .25

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/25/1873	54	43	55	UNK		4c	E98R	
08/16/1874	44	35	45	UNK		"	"	
09/18/1875	53	42	54	UNK	T	"	"	
03/19/1876	43	35	45	UNK		"	"	
09/19/1877	40	32	41	SE	T	"	"	
02/20/1878	59	46	59	SE		"	"	
10/11/1879	46	37	48	SE		"	"	
12/29/1880	40	32	41	N		"	98R	
02/06/1881	70	54	70	SE		"	"	
09/09/1882	34	28	42	N	T	"	64R	
08/22/1883	37	30	45	NE		"	"	
02/19/1884	39	32	48	N		"	"	
08/10/1885	57	45	58	SE		"	96R	
04/28/1886	59	46	60	SE		"	"	
10/19/1887	58	46	60	SE	T	"	"	
08/20/1888	73	57	74	SE	T	"	"	
04/13/1889	84	65	84	SE		"	"	
03/15/1890	40	32	42	NW		"	"	
09/03/1891	48	38	49	N		"	"	
10/08/1892	60	47	61	W		"	"	
10/02/1893	80	62	80	SE	T	"	"	
10/08/1894	60	47	61	N	T	"	"	
02/07/1895	59	46	60	NW		"	"	
02/05/1896	43	35	45	NE		"	"	
08/03/1897	60	47	61	N		"	"	
06/05/1898	48	38	49	N		"	"	
08/27/1899	60	47	61	N		"	"	
05/17/1900	45	36	47	SE		"	"	
08/15/1901	78	60	78	SE	T	"	"	
02/27/1902	60	47	61	SW		"	"	
01/30/1903	39	32	42	N		"	"	
01/16/1904	40	32	42	NW		"	"	
04/25/1905	42	34	44	SE		"	"	
09/27/1906	66	51	64	E	T	"	106R	
05/27/1907	52	41	52	NW		"	"	
02/09/1908	40	32	40	SE		"	"	
09/21/1909	56	44	55	SE	T	"	"	
06/10/1910	42	34	43	NW		"	"	
11/12/1911	49	39	49	NW		"	"	
09/14/1912	56	44	55	SE	T	"	"	
07/06/1913	39	32	40	NE		"	"	
11/14/1914	52	41	41	E		"	161R	
09/29/1915	64	50	51	SE	T	"	"	
07/15/1916	130	98	100	E	T	"	"	
09/28/1917	112	85	87	N	T	"	"	
06/09/1918	78	60	61	NW		"	"	
07/07/1919	60	47	48	N		"	"	
09/17/1920	64	50	51	SE		"	"	
06/28/1921	68	53	54	S		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/28/1922	50	40	41	SE		"	"	
10/16/1923	65	51	52	SE	T	"	"	
06/16/1924	62	49	50	NE		"	"	
07/31/1925	68	53	54	NW		"	"	
09/20/1926	100	76	78	N	T	"	"	
04/16/1927	75	58	59	SE		"	"	
04/06/1928	42	40	41	NW		3c	"	
09/30/1929	50	47	48	N	T	"	"	
01/29/1930	44	42	43	N		"	"	
03/26/1931	66	61	63	NW		"	"	
09/01/1932	62	57	58	E	T	"	"	
07/20/1933	57	53	54	E		"	"	
11/29/1934	66	61	63	SE		"	"	
04/07/1935	50	47	48	W		"	"	
03/16/1936	40	38	39	NW		"	"	
04/30/1937	64	59	60	E		"	"	
08/26/1938	45	42	43	SE		"	"	
11/18/1939	52	49	50	E		"	"	
02/17/1940	51	48	49	E		"	"	
12/22/1941	52	49	50	SE		"	"	
02/16/1942	39	37	38	S		"	"	
07/07/1943	36	34	35	N		"	"	
09/21/1944	36	34	35	N		"	"	
01/09/1945	30	29	30	NW		"	"	
05/07/1946	44	42	53	N		"	105R	
09/19/1947	53	49	62	E	T	"	"	
09/04/1948	42	40	50	S	T	"	"	
03/30/1949	70	65	58	SE		"	248R	
03/08/1950	54	50	44	NW		"	"	
06/10/1951	54	50	44	NW		"	"	
02/15/1952	68	63	56	NW		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	50
.80	5	62
.90	10	71
.95	20	78
.96	25	80
.98	50	86
.99	100	92
.995	200	96
.998	500	101
.999	1000	106

HARTFORD, CONNECTICUT WBO Z_o=.7 1905-1939 41 46 72 40
WBAN #94760

Date	Measured Speed	True Speed	Speed at Standard Ht (30M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/07/1905	50	40	45	SE		4c	132R	
03/22/1906	48	38	43	SW		"	"	
03/20/1907	48	38	43	NW		"	"	
02/15/1908	54	43	49	S		"	"	
03/25/1909	60	47	51	S		"	140R	
01/04/1910	60	47	51	NW		"	"	
11/12/1911	54	43	47	S		"	"	
02/22/1912	62	49	54	S		"	"	
01/03/1913	66	51	56	SW		"	"	
01/13/1914	55	43	47	NW		"	"	
12/26/1915	70	54	59	NW		"	"	
12/23/1916	52	41	45	NW		"	"	
01/14/1917	47	38	42	S		"	"	
03/03/1918	50	40	44	NW		"	"	
11/30/1919	49	39	43	SW		"	"	
10/01/1920	74	57	62	S		"	"	
12/18/1921	50	40	44	S		"	"	
03/07/1922	48	38	42	S		"	"	
06/26/1923	46	37	40	SW		"	"	
1924	MISSING							
1925	MISSING							
1926	MISSING							
1927	MISSING							
1928	MISSING							
1929	MISSING							
1930	MISSING							
1931	MISSING							
1932	MISSING							
1933	MISSING							
12/27/1934	60	47	60	NW		"	102R	
01/02/1935	50	40	51	NW		"	"	
03/22/1936	50	40	51	NW		"	"	
02/02/1937	43	35	45	NW		"	"	
09/21/1938	76	59	75	E	T	"	"	
02/15/1939	54	43	55	SW		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Type I Distritution
.50	2	48
.80	5	55
.90	10	59
.95	20	63
.96	25	64
.98	50	68
.99	100	72
.995	200	76
.998	500	81
.999	1000	86

HARTFORD, CONNECTICUT (BDL) APT z_0=.05 1940-1953 41 44 72 39
WBAN #14740 1954-1979 41 56 72 41

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/06/1940	38	36	34	NW		3c	44R	
12/24/1941	48	45	43	S		"	"	
03/09/1942	43	41	39	SW		"	"	
12/11/1943	48	45	43	NW		"	"	
09/14/1944	67	62	59	N	T	"	"	
11/20/1945	48	45	43	NW		"	"	
06/08/1946	56	52	50	SW		"	"	
11/08/1947	52	49	47	SE		"	"	
11/13/1948	43	41	39	NW		"	"	
04/06/1949	47	44	42	SW		"	"	
11/25/1950	76	70	67	E		"	"	
11/26/1951	41	39	37	NW		"	"	
03/11/1952	61	57	54	SE		"	"	
02/15/1953	54	50	48	NW		"	"	
08/31/1954	60	56	48	NE	T	"	98R	
11/21/1955	54	50	43	NW		"	"	
03/16/1956	54	50	43	NE		"	"	
06/29/1957	48	45	39	N		"	"	
02/25/1958	54	50	43	W		"	"	
01/06/1959	52	49	42	NW		"	"	
09/12/1960	46	43	47	NE	T	"	20G	
02/04/1961	41	39	43	N		"	"	
03/06/1962	41	39	43	NE		"	"	
04/04/1963	43	41	45	NW		"	"	
01/21/1964	54	50	55	NW		"	"	
03/27/1965	40	38	42	NW		"	"	
07/19/1966	38	36	39	NW		"	"	
02/16/1967	57	53	58	SW		"	"	
03/01/1968	42	40	44	NW		"	"	
01/01/1969	39	37	40	NW		"	"	
04/03/1970	44	42	46	NW		"	"	
03/04/1971	50	47	51	NW		"	"	
01/25/1972	52	49	54	NW		"	"	
01/20/1973	36	34	37	NW		"	"	
03/10/1974	45	42	46	NW		"	"	
04/04/1975	39	37	40	NW		"	"	
12/13/1976	44	42	46	NW		"	"	
03/24/1977	41	39	43	NW		"	"	
01/26/1978	52	49	54	SW		"	"	
10/03/1979	69	64	70	NW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	45
.80	5	51
.90	10	56
.95	20	60
.96	25	61
.98	50	66
.99	100	70
.995	200	74
.998	500	79
.999	1000	83

NEW HAVEN, CONNECTICUT WBO $z_o = .7$ WBO 1873-1943 41 18 72 56
WBAN #94772

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/12/1873	55	43	50	UNK		4c	126R	
02/03/1874	40	32	37	UNK		"	"	
03/04/1875	42	34	39	UNK		"	"	
02/15/1876	51	41	48	UNK		"	"	
03/09/1877	68	53	61	SE		"	"	
02/01/1878	47	38	44	NE		"	"	
01/25/1879	63	49	57	NW		"	"	
12/26/1880	62	49	57	N		"	"	
03/09/1881	46	37	40	NE		"	140R	
01/31/1882	52	41	45	NE		"	"	
11/12/1883	50	40	44	W		"	"	
01/09/1884	59	46	50	E		"	"	
02/16/1885	60	47	51	E		"	"	
01/09/1886	62	49	54	NE		"	"	
12/18/1887	48	38	42	NE		"	"	
11/25/1888	72	56	61	NE		"	"	
03/16/1889	63	49	54	NE		"	"	
01/09/1890	66	51	56	NW		"	"	
01/22/1891	52	41	45	S		"	"	
03/01/1892	48	38	42	NE		"	"	
08/29/1893	60	47	51	S	T	"	"	
12/13/1894	48	38	42	W		"	"	
12/27/1895	62	49	54	SW		"	"	
02/06/1896	64	50	55	E		"	"	
02/06/1897	60	47	51	E		"	"	
01/23/1898	56	44	48	W		"	"	
02/13/1899	50	40	44	NE		"	"	
10/16/1900	56	44	48	NW		"	"	
04/15/1901	60	47	51	NE		"	"	
10/12/1902	65	51	56	NE	T	"	"	
09/16/1903	81	63	69	S	T	"	"	
10/21/1904	70	54	57	SE		"	153R	
01/03/1905	60	47	49	NE		"	"	
02/28/1906	50	40	42	N		"	"	
10/08/1907	60	47	49	S		"	"	
02/01/1908	70	54	57	SE		"	"	
11/24/1909	62	49	51	N		"	"	
01/21/1910	64	50	52	SE		"	"	
01/30/1911	60	47	49	W		"	"	
02/22/1912	60	47	49	S		"	"	
01/03/1913	60	47	49	SE		"	"	
03/01/1914	67	52	54	NE		"	"	
12/26/1915	70	54	57	NW		"	"	
04/12/1916	50	40	42	NW		"	"	
02/05/1917	52	41	43	NW		"	"	
03/03/1918	55	43	45	NW		"	"	
03/28/1919	60	47	49	N		"	"	
06/11/1920	50	40	42	NE		"	"	
03/21/1921	48	38	40	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/28/1922	52	41	43	NE		"	"	
10/23/1923	46	37	39	NE	T	"	"	
01/11/1924	60	47	49	SE		"	"	
11/16/1925	60	47	49	S		"	"	
11/16/1926	58	46	48	SE		"	"	
10/13/1927	64	50	52	SE		"	"	
04/19/1928	46	43	45	W		3c	"	
04/16/1929	50	47	49	NE		"	"	
08/23/1930	38	36	38	N		"	"	
04/01/1931	35	34	36	NE		"	"	
03/31/1932	50	40	42	SW		4c	"	
01/26/1933	50	40	42	N		"	"	
09/08/1934	52	41	43	SE	T	"	"	
04/10/1935	56	44	46	NE		"	"	
09/19/1936	53	42	44	N	T	"	"	
11/13/1937	52	41	43	E		"	"	
09/21/1938	59	46	48	NW	T	"	"	
11/05/1939	61	48	50	N		"	"	
02/14/1940	62	49	51	N		"	"	
03/08/1941	48	38	40	NE		"	"	
11/10/1942	40	38	40	S		3c	"	
01/28/1943	33	32	34	N		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Type I Distribution
.50	2	47
.80	5	53
.90	10	57
.95	20	61
.96	25	62
.98	50	66
.99	100	70
.995	200	74
.998	500	79
.999	1000	83

NEW HAVEN, CONNECTICUT (HVN) APT z_0=.5 1944-1968 41 16 72 53
WBAN #14758

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/08/1944	41	39	38	SE		3C	39R	
11/22/1945	40	38	37	SE		"	"	
08/10/1946	42	40	39	NW		"	"	
11/08/1947	44	42	41	SE		"	"	
10/25/1948	26	26	25	NE		"	"	
08/29/1949	35	34	33	SE	T	"	"	
11/25/1950	61	57	55	E		"	42R	
10/07/1951	45	42	40	SE		"	"	
11/22/1952	40	38	37	E		"	"	
12/07/1953	38	36	35	SW		"	"	
10/15/1954	50	47	45	SE	T	"	"	
10/14/1955	46	44	42	E		"	"	
11/21/1956	36	34	33	SW		"	"	
12/26/1957	41	39	37	SE		"	"	
02/28/1958	37	35	34	E		"	"	
12/07/1959	48	45	49	SW		"	20G	
01/03/1960	40	38	42	S		"	"	
09/21/1961	43	41	45	N	T	"	"	
12/31/1962	43	41	45	NW		"	"	
04/04/1963	50	47	51	NW		"	"	
01/10/1964	42	40	44	W		"	"	
03/27/1965	41	39	43	NW		"	"	
01/30/1966	48	45	49	S		"	"	
02/16/1967	43	41	45	W		"	"	
08/09/1968	54	40	44	W		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	40
.80	5	46
.90	10	50
.95	20	53
.96	25	54
.98	50	58
.99	100	61
.995	200	65
.998	500	73
.999	1000	85

NEW LONDON, CONNECTICUT WBO** z_0=.4 1873-1895 41 21 72 05

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/17/1873	81	62	70	UNK		4c	E54R	
11/23/1874	45	36	41	UNK		"	"	
11/23/1875	54	43	48	UNK		"	"	
03/21/1876	67	52	59	UNK		"	"	
11/02/1877	61	48	54	SW		"	"	
12/02/1878	67	52	59	SE		"	"	
01/26/1879	46	37	42	NW		"	"	
02/03/1880	49	37	42	NE		"	"	
12/29/1881	56	44	50	SE		"	"	
01/27/1882	46	37	42	W		"	"	
07/02/1883	50	40	45	NW		"	"	
11/23/1884	60	47	53	S		"	"	
02/16/1885	60	47	53	E		"	"	
11/18/1886	60	47	53	SW		"	"	
12/28/1887	78	60	68	SE		"	"	
03/21/1888	58	46	52	S		"	"	
01/09/1889	66	51	58	SE		"	"	
07/26/1890	78	60	68	S		"	"	
01/22/1891	66	51	58	SE		"	"	
01/02/1892	48	38	43	S		"	54R	
10/14/1893	70	54	61	SE	T	"	"	
11/03/1894	54	43	48	S		"	"	
02/08/1895	56	44	50	NE		"	"	1

REMARKS:

1. Ends 10/1

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	51
.80	5	60
.90	10	66
.95	20	71
.96	25	73
.98	50	78
.99	100	84
.995	200	89
.998	500	96
.999	1000	101

DELAWARE BREAKWATER, DELAWARE WBO* z_o=.05 1880-1884 38 48 75 06
1898-1941
1950-1961, 1967

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/12/1880	116	88	79	NW		4c	E65R	
03/09/1881	100	76	69	NE		"	"	
1882	MISSING							
01/10/1883	68	53	48	N		"	"	
02/20/1884	110	84	76	NW		"	"	
09/26/1898	78	60	54	NE		"	65R	
10/31/1899	82	63	57	NE	T	"	"	
12/09/1900	68	53	48	NW		"	"	
07/06/1901	72	56	51	NW		"	"	
03/19/1902	80	62	56	NW		"	"	
09/16/1903	90	69	62	NE	T	"	"	
09/14/1904	114	87	79	NW	T	"	"	
01/25/1905	78	60	54	N		"	"	
04/23/1906	78	60	54	NW		"	"	
12/10/1907	86	66	60	S		"	"	
02/14/1908	80	62	56	S		"	"	
03/04/1909	92	70	63	NE		"	"	
12/15/1910	80	62	56	NW		"	"	
06/12/1911	72	56	51	SW		"	"	
02/21/1912	86	66	60	SW		"	"	
01/03/1913	78	60	54	SW		"	"	
03/02/1914	88	68	61	W		"	"	
01/12/1915	78	60	54	NE		"	"	
04/15/1916	76	59	53	NW		"	"	
05/28/1917	78	60	54	W		"	"	
04/10/1918	82	63	57	NE		"	"	
08/13/1919	78	60	54	N		"	"	
02/04/1920	78	60	54	NE		"	"	1
04/23/1921	73	57	51	E		"	"	2
08/03/1922	67	52	47	NW		"	"	
03/19/1923	70	54	49	UNK		"	"	
06/25/1924	84	65	59	NW		"	"	
12/02/1925	84	65	59	NE		"	"	
11/16/1926	72	56	51	SE		"	"	
07/11/1927	80	62	56	NW		"	"	
01/24/1928	120	91	82	SW		"	"	
04/15/1929	72	66	60	NE		3c	"	
12/02/1930	60	56	50	NW		"	66R	
04/01/1931	62	57	51	NE		"	"	
03/06/1932	76	70	63	NW		"	"	
08/23/1933	78	72	65	NE	T	"	"	
1934	MISSING							
11/17/1935	70	65	59	N		"	"	
09/18/1936	77	71	64	NE	T	"	"	
04/26/1937	60	56	50	E		"	"	
11/24/1938	63	58	55	N		"	48R	
01/22/1939	67	62	58	NW		"	"	
02/14/1940	71	65	61	N		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/08/1941	65	60	56	NE		"	"	
01/06/1950	76	70	63	NW		"	68R	
02/07/1951	66	61	55	NW		"	"	
10/02/1952	70	65	58	W		"	"	
12/31/1953	66	61	55	W		"	"	
10/15/1954	75	69	62	S	T	"	"	
01/13/1955	60	56	50	W		"	"	
09/26/1956	70	65	58	N	T	"	"	
04/08/1957	66	61	55	NW		"	"	
1958	MISSING							
04/02/1959	60	56	50	NW		"	"	
09/11/1960	98	89	80	NW	T	"	"	
06/02/1961	70	65	58	W		"	"	
09/16/1967	68	63	57	N	T	"	"	

REMARKS:

1. 2 mo. missing

2. 3 mo. missing

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	57
.80	5	63
.90	10	68
.95	20	72
.96	25	74
.98	50	77
.99	100	80
.995	200	83
.998	500	86
.999	1000	88

WASHINGTON, D.C. WBO z_0=.7 1873-1958 38 54 77 03
WBAN #93725

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/09/1873	66	51	75	NW		4c	67R	
07/04/1874	43	35	52	N		"	"	
12/13/1875	45	36	53	UNK		"	"	
02/02/1876	60	47	69	NW		"	"	
07/28/1877	78	60	88	NW		"	"	
08/05/1878	66	51	75	N		"	"	
01/03/1879	59	46	68	NW		"	"	
03/24/1880	44	35	52	NW		"	"	
06/27/1881	48	38	56	NW		"	"	
12/07/1882	60	47	69	NW		"	"	
10/30/1883	28	24	35	W		"	"	
04/04/1884	36	30	44	NW		"	"	
01/17/1885	43	35	52	NW		"	"	
02/26/1886	44	35	52	NW		"	"	
08/11/1887	44	35	52	NW		"	"	
03/12/1888	48	38	56	NW		"	"	
04/24/1889	60	47	69	NW		"	"	
03/29/1890	56	44	65	NW		"	"	
11/23/1891	60	47	69	SW		"	"	
05/06/1892	54	43	63	NW		"	"	
02/20/1893	48	38	56	NW		"	"	
01/30/1894	60	47	69	NW		"	"	
02/09/1895	60	47	66	NW		"	76R	
09/29/1896	80	62	87	SE	T	"	"	
11/16/1897	54	43	60	NW		"	"	
02/16/1898	58	46	65	NW		"	"	
02/13/1899	50	40	56	NW		"	"	
01/26/1900	50	40	56	NW		"	"	
01/25/1901	40	32	45	NW		"	"	
03/19/1902	45	36	51	NW		"	"	
02/28/1903	55	43	60	SW		"	"	
03/03/1904	52	41	58	NW		"	"	
01/25/1905	52	41	58	NW		"	"	
08/21/1906	46	37	52	NW		"	E76R	
04/24/1907	44	35	49	NW		"	79R	
04/30/1908	58	46	62	NW		"	85R	
02/12/1909	56	44	59	SW		"	"	
02/18/1910	48	38	51	NW		"	"	
03/15/1911	60	47	63	NW		"	"	
06/16/1912	58	46	62	NW	T	"	"	
07/30/1913	70	54	73	NE		"	"	
03/02/1914	72	56	76	NW		"	"	
07/16/1915	54	43	58	NW		"	"	
08/27/1916	62	49	66	NW		"	"	
06/27/1917	50	40	54	NW		"	"	
02/26/1918	60	47	63	NW		"	"	
03/28/1919	55	43	58	NW		"	"	
03/05/1920	60	47	63	NW		"	"	
03/28/1921	55	43	58	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/07/1922	50	40	54	NW		"	"	
02/14/1923	48	38	51	W		"	"	
04/20/1924	64	50	68	NW		"	"	
02/26/1925	54	43	58	NW		"	"	
07/10/1926	54	43	58	NW		"	"	
11/17/1927	60	47	63	SW		"	"	
01/25/1928	40	38	51	NW		3c	"	
03/07/1929	48	45	61	NW		"	"	
04/07/1930	40	38	51	NW		"	"	
12/14/1931	36	34	46	NW		"	"	
03/06/1932	60	47	63	NW		4c	"	
08/22/1933	49	40	54	NE	T	"	"	
02/13/1934	60	47	63	NW		"	"	
01/14/1935	44	35	47	NW		"	"	
01/23/1936	60	47	63	NW		"	"	
06/14/1937	44	35	47	NW		"	"	
02/07/1938	39	32	43	NW		"	"	
12/08/1939	40	38	51	NW		3c	"	
12/17/1940	37	35	47	NW		"	"	
02/18/1941	40	38	51	NW		"	"	
03/09/1942	45	42	54	W		"	100R	
01/19/1943	48	45	58	NW		"	"	
02/01/1944	42	40	51	NW		"	"	
01/01/1945	35	34	44	NW		"	"	
03/07/1946	44	42	54	NW		"	"	
06/06/1947	44	42	54	N		"	"	
06/24/1948	46	43	55	NW		"	"	
05/07/1949	50	47	60	NW		"	"	
06/10/1950	42	40	51	NW		"	"	
02/02/1951	38	36	46	NW		"	"	
10/20/1952	58	54	69	NW		"	"	
07/22/1953	50	47	60	SW		"	"	
10/15/1954	44	42	54	SE	T	"	"	
03/16/1955	46	43	55	NW		"	"	
02/25/1956	40	38	49	NW		"	"	
01/10/1957	43	41	52	NW		"	"	
06/13/1958	45	42	54	NW		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	57
.80	5	65
.90	10	70
.95	20	76
.96	25	77
.98	50	82
.99	100	87
.995	200	93
.998	500	99
.999	1000	104

WASHINGTON, D.C. (DCA) APT z_o=.05 1945-1979 38 51 77 02
WBAN #13743

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/18/1945	44	42	36	S		3c	93R	
12/01/1946	56	52	45	NW		"	"	
11/03/1947	66	61	53	NE		"	"	
03/15/1948	60	56	49	SW		"	"	
08/28/1949	43	41	36	SE	T	"	"	
11/24/1950	52	49	42	E		"	113R	
03/13/1951	60	56	48	E		"	"	
11/21/1952	60	56	48	E		"	"	
07/22/1953	52	49	42	SW		"	"	
10/15/1954	85	78	66	SE	T	"	"	
03/22/1955	54	50	43	SW		"	"	
02/25/1956	62	57	48	NW		"	"	
10/06/1957	68	63	54	N		"	"	
06/13/1958	42	40	44	SW		"	20G	
02/11/1959	44	42	46	NW		"	"	
02/18/1960	58	54	46	NE		"	113R	
02/25/1961	61	57	62	SW		"	20G	
06/19/1962	44	42	46	NW		"	"	
04/23/1963	56	52	57	NW		"	"	
03/10/1964	46	43	47	SW		"	"	
02/25/1965	52	49	54	SW		"	"	
03/01/1966	40	38	42	W		"	"	
03/16/1967	45	42	46	NW		"	"	
06/24/1968	46	43	47	W		"	"	
12/27/1969	48	45	49	NW		"	"	
12/16/1970	46	43	47	E		"	"	
01/26/1971	50	47	51	NW		"	"	
06/21/1972	46	43	47	NW	T	"	"	
03/17/1973	40	38	42	SW		"	"	
12/01/1974	44	42	46	E		"	"	
04/04/1975	46	43	47	NW		"	"	
07/15/1976	54	50	55	N		"	"	
05/08/1977	54	50	55	NW		"	"	
01/26/1978	59	55	60	SW		"	"	
01/18/1979	52	49	54	NW		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	48
.80	5	53
.90	10	57
.95	20	60
.96	25	61
.98	50	65
.99	100	68
.995	200	71
.998	500	76
.999	1000	79

APALACHICOLA, FLORIDA WBO Z_o=.7 P_n=.67 1923-1974 29 44 84 59
WBAN #12832 P_t=.33

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/03/1923	42	34	57	SE		4c	49R	
09/15/1924	76	59	99	SE	T	"	"	
09/26/1925	40	32	54	NE		"	"	
09/19/1926	68	53	89	NE	T	"	"	
02/18/1927	50	40	67	N		"	"	
03/24/1928	42	40	67	NE		3c	"	
09/29/1929	70	65	109	E	T	"	"	
07/11/1930	68	63	104	N		"	51B	
03/28/1931	58	54	89	E		"	"	
08/31/1932	68	53	87	E	T	4c	"	
04/14/1933	65	51	84	SE		"	"	1.
1934	MISSING							
1935	MISSING							
1936	MISSING							
05/02/1937	50	47	77	SE		3c	51R	
08/28/1938	48	45	74	NE		"	"	
08/12/1939	64	59	97	NE	T	"	"	
09/18/1940	45	42	69	SE		"	"	
10/07/1941	60	56	92	NW	T	"	"	
03/02/1942	40	38	62	NW		"	"	
01/27/1943	35	34	56	E		"	"	
10/19/1944	38	36	59	N	T	"	"	
03/26/1945	48	45	74	SE		"	"	
09/15/1946	40	38	62	SE		"	"	
09/19/1947	73	67	110	SE	T	"	"	
11/02/1948	50	47	77	SE		"	"	
04/26/1949	47	44	72	SE		"	"	
08/31/1950	48	45	74	SE	T	"	"	
09/02/1951	46	43	71	N		"	"	
06/27/1952	50	47	77	N		"	"	
09/26/1953	56	52	85	SE	T	"	"	
08/21/1954	38	36	59	SE		"	"	
08/10/1955	36	34	56	SE		"	"	
09/24/1956	37	35	58	S	T	"	"	
03/21/1957	48	45	74	E		"	"	
03/24/1958	43	41	67	SE		"	"	
03/29/1959	42	40	66	SE		"	"	
01/01/1960	51	48	79	E		"	"	
03/18/1961	62	57	94	E		"	"	
08/07/1962	40	38	62	NE		"	"	
02/03/1963	37	35	58	N		"	"	
08/04/1964	67	62	102	NW		"	"	
09/29/1965	38	36	59	E	T	"	"	
06/09/1966	45	42	69	N	T	"	"	
09/03/1967	36	34	56	E		"	"	
11/11/1968	36	34	56	NW		"	"	
02/15/1969	44	42	69	E		"	"	
09/25/1970	47	44	72	SE		"	"	
03/19/1971	34	33	54	SW		"	"	
06/19/1972	52	49	81	E	T	"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/09/1973	36	34	56	N	T	"	"	
09/07/1974	38	36	59	SE	T	"	"	

REMARKS:

1. Ends 8/1

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	71
.80	5	86
.90	10	95
.95	20	102
.96	25	104
.98	50	110
.99	100	115
.995	200	120
.998	500	126
.999	1000	131

APALACHICOLA, FLORIDA (AQQ) APT Z_0=.05 1975-1979 29 44 85 02
WBAN #12832

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/06/1975	33	32	32	E		3c	30G	
12/20/1976	26	26	26	NW		"	"	
08/28/1977	31	30	30	SE		"	"	
01/09/1978	33	32	32	N		"	"	
07/15/1979	32	31	31	NW		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	30
.80	5	33
.90	10	35
.95	20	37
.96	25	38
.98	50	40
.99	100	42
.995	200	44
.998	500	47
.999	1000	49

CEDAR KEYS, FLORIDA WBO* z_o=.05 P_n=.4 1880-1889 29 08 83 02
P_t=.6

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/30/1880	78	60	56	E	T	4c	E50R	
09/24/1881	70	54	51	S		"	"	
09/10/1882	72	56	52	S	T	"	"	
07/19/1883	58	46	43	N		"	"	
03/19/1884	58	46	43	S		"	"	
10/11/1885	60	47	44	S	T	"	"	
06/21/1886	68	53	50	S	T	"	"	
07/26/1887	58	46	43	S	T	"	"	
10/10/1888	85	65	61	S	T	"	"	
08/07/1889	60	47	44	SE		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	53
.90	10	57
.95	20	59
.96	25	60
.98	50	61
.99	100	62
.995	200	63
.998	500	64
.999	1000	66

FORT MYERS, FLORIDA (FMY) WBO** z_o=.4 P_n=.54 1920-1932 26 39 81 52
WBAN #12835 P_t=.46

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/12/1920	41	33	40	UNK		4c	49R	
06/24/1921	50	40	48	UNK		"	"	
05/17/1922	37	30	36	UNK		"	"	
05/03/1923	33	27	33	UNK		"	"	
10/20/1924	60	47	57	NE	T	"	"	1.
11/30/1925	41	33	40	NE	T	"	"	
09/18/1926	70	54	65	UNK	T	"	"	2.
09/22/1927	42	34	39	UNK		"	53R	3.
09/17/1928	72	56	64	UNK	T	"	"	
09/28/1929	70	54	61	UNK	T	"	"	
01/29/1930	41	33	37	UNK		"	"	
03/03/1931	42	34	39	UNK		"	"	
08/30/1932	52	41	47	UNK	T	"	"	

REMARKS:

1. Mo. 4 missing
2. Record incomplete Mo. 1, 2; Mo. 10-12 missing
3. Mo. 1-4 missing

Probability	Return Period (years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	57
.90	10	61
.95	20	63
.96	25	66
.98	50	68
.99	100	69
.995	200	71
.998	500	72
.999	1000	74

JACKSONVILLE, FLORIDA WBO z_o=.7 P_n=.74 1873-1949 30 20 80 39
WBAN #93852 P_t=.26

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/08/1873	62	49	66	NW		4c	E84R	
09/28/1874	64	50	68	SW	T	"	"	
03/07/1875	60	47	64	SW		"	"	
07/24/1876	82	63	85	SW	T	"	"	
06/21/1877	72	56	76	N		"	"	
09/11/1878	58	46	62	NE	T	"	"	
04/10/1879	47	38	52	S		"	"	
06/28/1880	44	36	49	SW		"	"	
03/29/1881	60	47	64	SW		"	84R	
10/11/1882	58	46	62	SE	T	"	"	
06/22/1883	60	47	64	W		"	"	
04/02/1884	64	50	68	W		"	"	
08/24/1885	60	47	64	W	T	"	"	
06/29/1886	58	46	62	S	T	"	"	
07/07/1887	60	47	64	SW		"	"	
09/09/1888	48	38	52	S	T	"	"	
09/23/1889	50	40	54	S	T	"	"	
12/17/1890	53	42	57	W		"	"	
02/26/1891	60	47	64	W		"	"	
12/20/1892	45	36	49	SW		"	"	
04/20/1893	60	47	64	SW		"	"	
10/09/1894	75	58	79	SE	T	"	"	
06/05/1895	58	46	62	SE		"	"	
09/29/1896	100	76	103	SE	T	"	"	
04/09/1897	60	47	64	S		"	"	
10/02/1898	60	47	64	W	T	"	"	
05/13/1899	60	47	64	NW		"	"	
02/28/1900	58	46	62	S		"	"	
03/26/1901	70	54	73	S		"	"	
02/28/1902	60	47	64	S		"	"	
02/16/1903	100	76	87	SW		"	129R	
07/22/1904	57	45	51	SW		"	"	
12/20/1905	66	51	58	SW		"	"	
07/30/1906	60	47	54	SW		"	"	
06/29/1907	74	57	65	S	T	"	"	
03/24/1908	78	60	69	S		"	"	
01/29/1909	64	50	57	SW		"	"	
01/28/1910	74	57	65	SW		"	"	
08/28/1911	60	47	54	SW	T	"	"	
02/21/1912	66	51	58	SW		"	"	
02/27/1913	68	53	61	SW		"	"	
02/13/1914	60	47	54	S		"	"	
05/08/1915	68	53	47	SW		"	245R	1.
12/12/1916	60	47	42	SW		"	"	
07/14/1917	64	50	45	SW		"	"	
04/04/1918	68	53	47	W		"	"	
05/20/1919	62	49	44	SW		"	"	
07/04/1920	68	53	47	W		"	"	
10/31/1921	78	60	53	SW		"	"	
02/07/1922	62	49	44	W		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/06/1923	70	54	48	SW		4c	245R	
06/24/1924	76	59	53	SW		"	"	
11/12/1925	64	50	45	SW		"	"	
03/26/1926	86	66	59	SW		"	"	
02/18/1927	62	49	44	W		"	"	
09/17/1928	56	52	46	E	T	3c	"	
10/01/1929	68	63	56	SW	T	"	"	
12/19/1930	46	43	38	SE		"	"	
03/28/1931	70	65	58	SE		"	"	
03/06/1932	66	51	45	SW		4c	"	
09/05/1933	66	51	45	SE	T	"	"	
07/14/1934	52	41	51	NE		"	110R	
03/12/1935	62	49	61	SW		"	"	
01/19/1936	64	50	62	SW		"	"	
06/29/1937	44	35	43	SW	T	"	"	
05/14/1938	44	35	43	W		"	"	
03/27/1939	50	40	50	W		"	"	
06/25/1940	46	37	46	SW		"	"	
07/26/1941	35	37	46	SW		4c-x	"	
03/02/1942	40	42	52	SW		"	"	
03/06/1943	40	42	52	S		"	"	
10/19/1944	44	46	57	NE	T	"	"	
06/26/1945	43	45	56	NW	T	"	"	
05/26/1946	42	44	55	W		"	"	
10/06/1947	36	38	47	NE	T	"	"	
03/31/1948	43	45	56	E		"	"	
02/10/1949	48	50	62	W		"	"	

REMARKS:

1. Mo. 1-4 missing

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	56
.80	5	65
.90	10	72
.95	20	78
.96	25	80
.98	50	85
.99	100	90
.995	200	94
.998	500	98
.999	1000	102

JACKSONVILLE, FLORIDA (JAX) APT Z_o=.05 P_n=.73 1950-1979 30 25 81 39
WBAN #13889 P_t=.27

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/18/1950	70	72	65	E	T	4c-x	63R	
10/02/1951	40	42	38	NE	T	"	"	
10/20/1952	E54	56	51	N		"	"	
02/12/1953	50	52	47	SW		"	"	
09/11/1954	44	46	42	S		"	"	
05/15/1955	44	46	42	NE		"	"	
06/26/1956	47	49	44	N		"	"	
09/09/1957	44	46	42	S		"	"	
02/01/1958	40	42	38	W		"	"	
12/12/1959	36	38	34	S		"	"	
09/11/1960	44	46	42	NE	T	"	"	
04/12/1961	46	48	44	SW		"	"	
06/14/1962	50	54	49	E		"	"	
12/31/1963	60	62	56	N		"	"	
09/09/1964	E80	82	74	N	T	"	"	
09/08/1965	55	57	52	E	T	"	"	
06/09/1966	46	48	44	E	T	"	"	
06/30/1967	74	76	69	NE		"	"	
06/06/1968	50	52	47	N	T	"	"	
06/05/1969	56	58	53	N		"	"	
02/01/1970	42	44	40	SE		"	"	
07/01/1971	45	47	51	NW		"	20G	
08/06/1972	42	44	48	NW		"	"	
04/25/1973	46	48	53	W		"	"	
07/30/1974	42	44	48	SE		"	"	
05/27/1975	60	62	68	N		"	"	
03/16/1976	44	42	46	W		3c	"	
09/08/1977	34	33	36	W	T	"	"	
01/25/1978	41	39	43	SW		"	"	
08/15/1979	35	34	37	NE		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	57
.90	10	63
.95	20	68
.96	25	70
.98	50	74
.99	100	78
.995	200	82
.998	500	87
.999	1000	91

JUPITER, FLORIDA WBO* z_0=.05 1888-1904 26 57 80 07

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/16/1888	60	47	47	E	T	4c	E31R	
09/16/1889	46	37	37	E		"	"	
05/29/1890	48	38	38	SE		"	"	
11/18/1891	49	39	39	NW		"	"	
06/11/1892	45	36	36	NE	T	"	"	
10/12/1893	E72	56	57	W	T	"	31R	
09/26/1894	55	43	43	S	T	"	"	
10/22/1895	65	51	51	N	T	"	"	
03/11/1896	43	35	35	SW		"	"	
02/05/1897	61	48	48	SE		"	"	
08/01/1898	41	33	33	SE	T	"	"	
08/13/1899	63	49	49	N	T	"	"	
09/06/1900	51	44	44	E	T	"	"	
09/10/1901	60	47	43	N		"	55R	
06/13/1902	60	47	43	SW		"	"	
09/11/1903	84	65	60	NE	T	"	"	
10/17/1904	70	54	50	E	T	"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	42
.80	5	50
.90	10	54
.95	20	57
.96	25	58
.98	50	60
.99	100	62
.995	200	63
.998	500	64
.999	1000	66

KEY WEST, FLORIDA WBO** Z_o=.4 P_n=.71 1888-1957 24 33 81 48
WBAN #12858 P_t=.29

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/04/1888	96	73	84	NE	T	4c	50R	
01/28/1889	72	56	65	NW		"	"	
11/29/1890	60	47	54	NW		"	"	
02/22/1891	54	43	50	NW		"	"	
01/15/1892	48	38	44	N		"	"	
03/27/1893	52	41	47	SW		"	"	
09/25/1894	104	79	91	SW	T	"	"	
10/22/1895	55	43	50	NW	T	"	"	
12/02/1896	46	37	43	N		"	"	
02/05/1897	50	40	46	NW		"	"	
01/01/1898	43	35	40	N		"	"	
02/13/1899	60	47	54	W		"	"	
09/05/1900	48	38	44	NE	T	"	"	
02/19/1901	50	40	46	W		"	"	
03/05/1902	56	44	51	NW		"	"	
06/26/1903	45	36	41	NW		"	53R	
04/30/1904	50	40	45	SW		"	"	
05/26/1905	60	47	53	NW		"	"	
03/29/1906	60	47	53	NW		"	"	
06/01/1907	70	54	61	NW		"	"	
01/12/1908	56	44	50	W		"	"	
10/11/1909	94	72	82	NE	T	"	"	
1910	MISSING							1.
03/30/1911	50	40	45	NW		"	"	
11/28/1912	44	35	40	NW		"	50R	
08/06/1913	54	43	46	SW		"	64R	
02/20/1914	58	46	49	W		"	"	
12/20/1915	60	47	50	N		"	"	
11/15/1916	64	50	54	N	T	"	"	
02/02/1917	60	47	50	NW		"	"	
01/03/1918	54	43	46	NW		"	"	
09/10/1919	E120	91	98	E	T	"	"	
09/30/1920	58	46	49	SW	T	"	"	
10/25/1921	54	43	46	SW	T	"	"	
09/22/1922	56	44	47	W		"	"	
04/17/1923	56	44	47	NW		"	"	
10/20/1924	74	57	61	SW	T	"	"	
12/01/1925	62	49	53	NW	T	"	"	
10/20/1926	74	57	61	N	T	"	"	
02/19/1927	66	51	55	SW		"	"	
09/17/1928	44	42	45	W	T	3c	"	
09/28/1929	72	66	71	W	T	"	"	
06/18/1930	39	37	40	SW		"	"	
03/03/1931	56	52	56	W		"	"	
03/06/1932	62	49	53	SW		4c	"	
10/05/1933	50	47	50	NW	T	3c	"	
12/11/1934	43	35	38	N		4c	"	
09/03/1935	54	50	54	W	T	3c	"	
07/28/1936	52	41	44	NW	T	4c	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/02/1937	62	49	53	NW		4c	64R	
01/25/1938	44	35	38	NW		"	"	
07/12/1939	42	40	43	NW		3c	"	
12/27/1940	48	45	48	W		"	"	
02/09/1941	50	47	50	W		"	"	
02/24/1942	40	38	41	W		"	"	
03/21/1943	48	45	48	NW		"	"	
10/18/1944	72	66	71	SE	T	"	"	
12/04/1945	44	42	45	W		"	"	
10/07/1946	40	38	41	SW	T	"	"	
11/28/1947	63	58	62	NW		"	"	
09/21/1948	82	75	80	NW	T	"	"	
09/29/1949	39	37	40	W		"	"	
03/18/1950	48	45	48	NW		"	"	
11/17/1951	34	33	37	NW		"	55R	
02/27/1952	37	35	39	W		"	"	
01/09/1953	50	47	53	SW		"	"	
02/08/1954	30	29	33	NW		"	"	
05/17/1955	32	31	35	NW		"	"	
10/14/1956	29	28	31	NE		"	"	
10/03/1957	28	28	31	W		"	"	

REMARKS:

1. Estimated max speed (5 minute speed) 76 from south on 10/17. Not corrected for elevation. No extreme speed estimated.

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	47
.80	5	60
.90	10	69
.95	20	78
.96	25	80
.98	50	87
.99	100	92
.995	200	96
.998	500	103
.999	1000	107

KEY WEST, FLORIDA (EYW) APT z_o=.05 P_n=.42 1958-1976 24 33 8 45
WBAN #12836 P_t=.58

Date	Measured Speed	True Speed	Speed at Standard Ht (30 Ft)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/03/1958	65	59	58	SE	T	"	35G	
11/25/1959	38	36	36	NW		"	"	
09/10/1960	70	65	64	NW	T	"	"	
09/07/1961	52	49	48	SE	T	"	"	
03/06/1962	38	36	36	NW		"	"	
10/06/1963	38	36	36	NE	T	"	"	
10/14/1964	79	73	78	S	T	"	23G	
09/08/1965	E88	81	86	SW	T	"	"	
10/05/1966	92	84	89	SE	T	"	"	
07/09/1967	38	36	38	E		"	"	
10/16/1968	52	49	52	SE	T	"	"	
10/02/1969	42	40	43	SE	T	"	"	
10/20/1970	42	40	43	SE		"	"	
07/21/1971	41	39	42	E		"	"	
06/18/1972	46	43	46	SE	T	"	"	
02/09/1973	48	45	48	W		"	"	
06/25/1974	34	33	35	S	T	"	"	
09/07/1975	34	33	35	E		"	"	
04/06/1976	56	52	55	NW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	66
.90	10	76
.95	20	84
.96	25	87
.98	50	93
.99	100	98
.995	200	104
.998	500	110
.999	1000	114

MIAMI, FLORIDA (MIA) WBO z_o=.7 P_n=.6 1912-1958 25 47 80 12
WBAN #12859 P_t=.4 1959-1961 25 48 80 14

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/14/1912	37	30	43	SE		4c	72R	
02/15/1913	44	35	50	SW		"	"	
10/01/1914	42	34	46	SW		"	87R	
09/02/1915	43	35	47	E	T	"	"	
06/18/1916	43	35	47	W		"	"	
05/06/1917	52	41	55	SW		"	"	
01/03/1918	37	30	40	NW		"	"	
09/09/1919	50	40	54	SE		"	"	
08/15/1920	40	32	43	E		"	"	
10/25/1921	38	31	42	S	T	"	"	
05/30/1922	40	32	43	NW		"	"	
06/20/1923	33	27	36	N		"	"	
07/18/1924	40	32	43	NW		"	"	
09/14/1925	46	37	50	SE		"	"	
09/18/1926	E127	96	129	NE	T	"	"	
07/09/1927	44	35	47	S		"	"	
09/16/1928	78	72	97	W	T	3c	"	
09/28/1929	62	57	57	E	T	"	168R	
02/17/1930	41	39	39	NE		"	"	
12/31/1931	53	50	50	SW		"	"	
03/06/1932	62	49	49	SW		4c	"	
09/04/1933	65	51	51	SW	T	"	"	
04/20/1934	53	42	42	S		"	"	
11/04/1935	103	94	95	SE	T	3c	"	
03/09/1936	60	53	53	S		4c-b	"	
07/01/1937	52	46	46	S		"	"	
06/22/1938	33	35	35	SE		4c-x	"	
11/14/1939	39	41	41	NE		"	"	
12/27/1940	51	53	53	S		"	"	
10/06/1941	67	69	69	E	T	"	"	
08/17/1942	37	39	39	S	T	"	"	
07/10/1943	44	46	41	W		"	249R	
10/19/1944	67	69	61	S	T	"	"	
09/15/1945	107	109	97	SE	T	"	"	
10/07/1946	50	52	46	SE	T	"	"	
09/17/1947	84	86	76	W	T	"	"	
10/05/1948	84	86	78	NW	T	"	229R	
08/27/1949	58	60	54	SW	T	"	"	
10/18/1950	120	122	112	S	T	"	223R	
10/02/1951	55	51	47	S	T	3c	"	
02/02/1952	68	63	58	SE	T	"	"	
10/09/1953	48	45	41	SW	T	"	"	
07/15/1954	48	45	41	S		"	"	
04/16/1955	45	42	38	S		"	"	
10/14/1956	60	56	51	NE		"	"	
08/03/1957	62	57	52	SW		"	"	
01/02/1958	66	61	56	NE		"	"	
01/16/1959	39	37	46	NW		"	111R	
09/10/1960	E55	51	63	E	T	"	"	
05/26/1961	37	35	43	W		3c	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	68
.90	10	85
.95	20	97
.96	25	101
.98	50	111
.99	100	120
.995	200	128
.998	500	138
.999	1000	144

PENSACOLA, FLORIDA WBO Z_o=.7 P_n=.74 1880-1962 30 25 87 13
WBAN #93859 P_t=.26

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/02/1880	45	36	48	SW		4c	E89R	
09/15/1881	56	44	59	SE		"	"	
09/09/1882	62	49	65	N	T	"	"	
03/24/1883	40	32	43	E		"	"	
11/23/1884	40	32	43	S		"	"	
12/08/1885	56	44	59	SE		"	"	
12/04/1886	45	36	48	SE		"	"	
10/19/1887	60	47	63	SW	T	"	"	
08/20/1888	68	53	70	SW	T	"	"	
03/23/1889	48	38	51	SE		"	"	
07/24/1890	67	52	69	SW		"	"	
01/21/1891	54	43	57	SW		"	89R	
08/17/1892	58	46	61	S		"	"	
10/02/1893	72	56	74	SW	T	"	"	
10/08/1894	85	65	86	NE	T	"	"	
02/01/1895	60	47	63	NE		"	"	
07/07/1896	100	76	101	N	T	"	"	
03/19/1897	54	43	57	NW		"	"	
06/18/1898	58	46	61	NW		"	"	
12/11/1899	58	46	61	SE		"	"	
07/28/1900	60	47	63	SW		"	"	
08/15/1901	90	69	92	SW	T	"	"	
02/27/1902	60	47	61	SW		"	97R	
01/11/1903	60	47	61	SW		"	"	
03/14/1904	60	47	61	SW		"	"	
12/31/1905	60	47	61	SW		"	"	
09/27/1906	100	76	98	E	T	"	"	
05/31/1907	60	47	61	S		"	"	
04/27/1908	52	41	53	NW		"	"	
08/19/1909	78	60	59	S		"	183R	
02/17/1910	78	60	59	W		"	"	
12/20/1911	86	66	64	SE		"	"	
03/11/1912	100	76	74	NW		"	"	
01/26/1913	62	49	48	S		"	"	
11/27/1914	67	52	51	SE		"	"	
12/28/1915	86	66	64	SW		"	"	
10/18/1916	E125	95	93	W	T	"	"	
09/28/1917	125	95	92	SE	T	"	185R	
01/11/1918	76	59	57	SW		"	"	
05/26/1919	72	56	54	SW		"	"	
05/25/1920	70	54	52	N		"	"	
04/14/1921	60	47	46	S		"	"	
02/06/1922	63	49	48	NW		"	"	
10/16/1923	78	60	58	SE	T	"	"	
03/29/1924	E80	62	60	S		"	"	
07/29/1925	64	50	49	W		"	"	
09/20/1926	152	115	112	E	T	"	"	
09/18/1927	64	50	49	SE		"	"	
11/19/1928	48	45	44	S		3c	"	
09/30/1929	102	93	90	NE	T	"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/28/1930	54	50	49	NE		3c	185R	
12/31/1931	59	55	53	W		"	"	
08/31/1932	90	82	80	SE	T	"	"	
04/14/1933	76	59	57	SE		4c	"	
05/31/1934	85	65	63	NE	T	"	"	
04/02/1935	70	54	52	SW		"	"	
07/31/1936	80	62	60	N	T	"	"	
02/21/1937	80	62	60	S		"	"	
04/08/1938	64	50	49	SW		"	"	
06/16/1939	60	56	78	SE	T	3c	79R	
02/17/1940	44	42	58	SE		"	"	
12/22/1941	39	37	51	SE		"	"	
03/08/1942	35	34	47	W		"	"	
12/25/1943	32	31	43	SE		"	"	
09/10/1944	50	47	65	S	T	"	"	
05/16/1945	48	45	62	NW		"	"	
03/13/1946	36	34	47	SE		"	"	
09/19/1947	100	91	126	SE	T	"	"	
09/04/1948	47	44	61	SE	T	"	"	
03/22/1949	E44	42	58	SE		"	"	
03/08/1950	52	49	68	NW		"	"	
08/14/1951	35	34	47	NW		"	"	
04/01/1952	33	32	44	SE		"	"	
08/08/1953	61	57	79	W		"	"	
12/28/1954	33	32	44	SE		"	"	
05/20/1955	38	36	50	SE		"	"	
09/24/1956	42	40	55	NE	T	"	"	
04/01/1957	42	40	55	SE		"	"	
01/12/1958	31	30	42	SE		"	"	
03/28/1959	34	33	46	SE		"	"	
04/03/1960	43	41	57	NW		"	"	
03/18/1961	40	38	53	SE		"	"	
03/05/1962	34	33	46	W		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	55
.80	5	71
.90	10	86
.95	20	97
.96	25	100
.98	50	108
.99	100	114
.995	200	118
.998	500	124
.999	1000	129

PENSACOLA, FLORIDA (PNS) APT z_0=.05 1963-1969 30 28 87 12
WBAN #13889

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/29/1963	46	43	46	NW		3c	81R	
04/27/1964	48	45	40	SE		"	"	
01/13/1965	52	49	43	S		"	"	
04/18/1966	61	57	50	SE		"	"	
08/01/1967	59	55	48	SW		"	"	
06/10/1968	55	51	45	W		"	"	
04/13/1969	60	56	49	SE		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	45
.80	5	50
.90	10	52
.95	20	55
.96	25	56
.98	50	59
.99	100	61
.995	200	64
.998	500	67
.999	1000	70

PUNTA RASSA, FLORIDA WBO* z_o=.05 P_n=.5 P_t=.5 1873-1882 26 36 82 01

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/06/1873	100	76	71	UNK	T	4c	E50R	
02/09/1874	48	38	36	UNK		"	"	
09/19/1875	66	51	48	UNK		"	"	
10/20/1876	96	73	68	UNK	T	"	"	
04/13/1877	60	47	44	UNK		"	"	
09/11/1878	78	60	56	W	T	"	"	
01/19/1879	62	49	46	NW		"	"	
08/29/1880	108	82	77	SW	T	"	"	
11/24/1881	52	41	38	W		"	"	
10/10/1882	51	41	38	S	T	"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	48
.80	5	68
.90	10	74
.95	20	78
.96	25	80
.98	50	83
.99	100	86
.995	200	88
.998	500	91
.999	1000	93

SAND KEY, FLORIDA WBO* z_o=.05 P_n=.6 P_t=.4 1903-1924 24 27 81 52

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/12/1903	74	57	51	SE	T	4c	71R	1.
08/18/1904	60	47	42	SE		"	"	
05/26/1905	66	51	46	NW		"	"	
10/18/1906	82	63	56	NW	T	"	"	
04/01/1907	70	54	48	NW		"	"	
01/12/1908	60	47	42	SW		"	"	
01/05/1909	66	51	46	NW		"	"	
1910	MISSING							
1911	MISSING							
06/10/1912	72	56	50	W		"	72R	
06/25/1913	55	43	38	SE		"	"	
03/01/1914	60	47	42	NW		"	"	
12/20/1915	68	53	47	NW		"	"	
11/15/1916	78	60	53	N	T	"	"	
05/07/1917	70	54	48	SW		"	"	
03/20/1918	60	47	42	W		"	"	2.
09/09/1919	E120	91	81	NE	T	"	"	3.
09/30/1920	65	51	45	SW	T	"	"	
10/25/1921	64	50	45	S	T	"	"	
10/15/1922	52	41	37	S	T	"	"	
06/05/1923	72	56	50	E		"	"	
10/20/1924	70	54	48	SW	T	"	"	

REMARKS:

1. Begins 6/1
2. Ends 11/1
3. Begins 8/1

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	46
.80	5	54
.90	10	62
.95	20	68
.96	25	70
.98	50	74
.99	100	78
.995	200	82
.998	500	87
.999	1000	90

ST. MARKS, FLORIDA WBO* $\bar{z}_o=.05$ 1875-1879 30 10 84 12

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/11/1875	48	38	36	UNK		4c	E50R	
07/13/1876	50	40	37	UNK		"	"	
10/03/1877	84	65	61	SE	T	"	"	
03/10/1878	54	43	40	SE		"	"	
04/17/1879	72	56	52	SW		"	"	1.

REMARKS:

1. Ends 11/1

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	43
.80	5	52
.90	10	58
.95	20	64
.96	25	66
.98	50	72
.99	100	77
.995	200	83
.998	500	90
.999	1000	96

TAMPA, FLORIDA WBO z_o=.7 P_n=.7 1890-1940 27 57 82 27
P_t=.3

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/17/1890	40	32	52	UNK		4c	52R	
09/17/1891	30	25	41	UNK		"	"	
08/09/1892	46	37	54	SE		"	67R	
03/17/1893	54	43	63	SW		"	"	
10/09/1894	50	40	59	SE	T	"	"	
04/08/1895	49	39	57	SW		"	"	
02/06/1896	58	46	68	SE		"	"	
09/21/1897	40	32	47	N	T	"	"	
12/04/1898	45	36	53	SW		"	"	
07/31/1899	43	35	52	S	T	"	"	
04/20/1900	45	36	53	S		"	"	
05/20/1901	60	47	69	SE		"		
02/24/1902	60	47	69	S		"	"	
09/12/1903	54	43	63	NE	T	"	"	
08/07/1904	38	31	46	SE		"	"	
12/20/1905	42	34	44	W		"	96R	
02/27/1906	42	34	44	W		"	"	
09/12/1907	60	47	61	E		"	"	
01/13/1908	50	40	52	W		"	"	
03/25/1909	48	38	49	SW		"	"	
10/18/1910	54	43	56	N	T	"	"	
06/17/1911	51	41	53	SE		"	"	
02/21/1912	55	43	56	SW		"	"	
02/19/1913	48	38	49	NE		"	"	
09/01/1914	54	43	56	SW		"	"	
05/09/1915	51	41	53	S		"	"	
04/21/1916	58	46	60	NW		"	93R	
04/08/1917	48	38	50	SW		"	"	
01/11/1918	50	40	52	SW		"	"	
06/12/1919	39	32	42	NE		"	"	
08/04/1920	42	34	45	SW		"	"	
10/25/1921	75	58	76	S	T	"	"	
07/12/1922	50	40	52	SE		"	"	
10/06/1923	33	27	36	NW		"	87R	
06/17/1924	44	35	47	W		"	"	
12/01/1925	58	46	62	NE	T	"	"	
09/19/1926	66	52	70	E	T	"	"	
06/28/1927	40	32	43	NE		"	"	
08/13/1928	42	40	54	SE	T	3c	"	
09/29/1929	36	34	46	E	T	"	"	
05/23/1930	60	56	53	NE		"	197R	
12/31/1931	55	51	48	NW		"	"	
03/05/1932	66	51	48	SW		4c	"	
09/04/1933	64	50	48	N	T	"	"	
02/26/1934	64	50	48	NW		"	"	
09/04/1935	E110	84	80	SE	T	"	"	
07/23/1936	60	47	45	S		"	"	
07/29/1937	80	62	59	SE	T	"	"	
05/06/1938	64	50	48	NE		"	"	
08/12/1939	74	57	54	S	T	"	"	
06/04/1940	52	41	39	S	T	"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	52
.80	5	61
.90	10	67
.95	20	71
.96	25	73
.98	50	77
.99	100	81
.995	200	84
.998	500	86
.999	1000	88

TAMPA, FLORIDA (TPA) APT z_o=.5 P_n=.36 1941-1951 27 58 82 32
WBAN #12842 P_t=.64

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/16/1941	56	44	42	SE	T	4c	73R	
08/18/1942	60	47	45	S	T	"	"	
06/06/1943	52	49	47	SW		3c	"	
10/19/1944	74	68	65	NE	T	"	"	
06/24/1945	56	52	50	SW	T	"	"	
02/27/1946	82	75	72	SW		"	"	
03/01/1947	60	56	55	SW	T	"	36R	
07/31/1948	40	38	37	S		"	"	
08/27/1949	58	54	53	SW	T	"	"	
09/05/1950	48	45	44	S	T	"	"	
04/02/1951	46	43	42	SW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	50
.80	5	59
.90	10	64
.95	20	67
.96	25	69
.98	50	74
.99	100	82
.995	200	91
.998	500	101
.999	1000	110

TITUSVILLE, FLORIDA WBO** z_o=.4 1888-1895 28 34 80 51
WBAN #12874

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/08/1888	72	56	58	UNK	T	4c	72R	
06/19/1889	60	47	49	W		"	"	
11/29/1890	66	51	53	NE		"	"	
11/18/1891	64	50	52	N		"	"	
10/03/1892	60	47	49	NE		"	"	
10/11/1893	78	60	62	N	T	"	"	
09/25/1894	70	54	56	NE	T	"	"	
02/15/1895	76	59	61	E		"	"	1.

REMARKS:

1. Ends 11/14

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	59
.90	10	62
.95	20	66
.96	25	67
.98	50	70
.99	100	73
.995	200	76
.998	500	80
.999	1000	83

SAVANNAH, GEORGIA WBO Z_o=.7 P_n=.75 1888-1944 32 05 81 05
WBAN #93860 P_t=.25

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/11/1888	60	47	69	NE	T	4c	67R	
03/14/1889	52	41	60	NW		"	"	
12/17/1890	60	47	69	W		"	"	
08/13/1891	40	32	47	NE		"	"	
02/12/1892	40	32	47	NW		"	"	
08/27/1893	80	62	82	NE	T	"	89R	
05/26/1894	60	47	63	NW		"	"	
04/02/1895	45	36	48	W		"	"	
09/29/1896	80	62	82	SE	T	"	"	
09/22/1897	47	38	51	N	T	"	"	
08/31/1898	80	62	82	NW	T	"	"	
08/14/1899	48	38	51	NE	T	"	"	
06/17/1900	50	40	53	SW		"	"	
03/23/1901	45	36	48	SE		"	"	
02/28/1902	50	40	53	W		"	"	
02/16/1903	60	47	63	W		"	"	
11/13/1904	46	37	49	W		"	"	
12/20/1905	50	40	53	SW		"	"	
10/20/1906	56	44	59	N	T	"	"	
07/24/1907	44	36	48	S		"	"	
02/15/1908	46	37	49	W		"	"	
12/25/1909	64	50	48	W		"	194R	
10/19/1910	84	65	62	NE	T	"	"	
08/28/1911	96	73	70	NW	T	"	"	
02/21/1912	66	51	49	W		"	"	
01/03/1913	72	56	54	W		"	"	
05/07/1914	90	69	66	W		"	"	
11/18/1915	74	57	54	SE		"	"	
03/15/1916	66	51	49	NW		"	"	
02/02/1917	68	53	51	NW		"	"	
01/11/1918	74	57	54	SW		"	"	
02/14/1919	52	41	39	W		"	"	
03/13/1920	60	47	45	W		"	"	
04/17/1921	66	51	49	SE		"	"	
11/28/1922	60	47	45	NW		"	"	
03/06/1923	60	47	45	W		"	"	
08/02/1924	60	47	45	W		"	"	
08/21/1925	80	62	59	NW		"	"	
03/03/1926	60	47	45	W		"	"	
08/25/1927	68	53	51	W		"	"	
09/18/1928	60	56	54	NW	T	3c	"	
03/05/1929	60	56	54	W		"	"	
03/02/1930	40	38	36	NW		"	"	
06/24/1931	42	40	38	N		"	"	
06/15/1932	78	60	57	W		4c	"	
09/05/1933	70	54	57	SE	T	"	152R	
08/27/1934	60	47	49	N		"	"	
09/05/1935	64	50	53	S	T	"	"	
09/13/1936	80	62	65	SW		"	"	
06/15/1937	70	54	57	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/16/1938	61	48	50	S		4c	152R	
01/24/1939	50	40	42	W		"	"	
08/11/1940	119	90	95	N	T	"	"	
02/17/1941	36	38	40	NW		4c-x	"	
03/02/1942	44	46	48	S		"	"	
07/19/1943	36	38	40	NW		"	"	
10/19/1944	49	51	54	NE	T	"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	51
.80	5	63
.90	10	72
.95	20	79
.96	25	81
.98	50	87
.99	100	91
.995	200	94
.998	500	97
.999	1000	100

SAVANNAH, GEORGIA (SAV) APT Z_o=.05 P_n=.86   1945-1950   32 01   81 08
WBAN #03822 P_t=.14   1951-1979   32 08   81 12

Date	Measured Speed	True Speed	Speed at Standard Ht (30 Ft)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/10/1945	48	50	47	SW		4c-x	51R	
02/10/1946	60	62	58	SW		"	"	
10/15/1947	83	85	80	NE	T	"	"	
04/01/1948	62	64	60	SW		"	"	
08/28/1949	50	52	49	SE	T	"	"	
04/27/1950	56	58	54	SW		"	"	
07/16/1951	49	51	51	SE		"	33R	
06/02/1952	56	58	58	NE		"	"	
06/13/1953	64	66	66	E		"	"	
08/17/1954	56	58	58	N		"	"	
01/13/1955	44	46	46	NW		"	"	
09/24/1956	41	43	43	SW	T	"	"	
08/02/1957	42	44	44	N		"	"	
02/01/1958	39	41	41	NW		"	"	
09/29/1959	54	56	56	NW	T	"	"	
02/18/1960	E42	44	44	W		"	"	
09/05/1961	50	47	47	NW		3c	"	
09/06/1962	48	45	45	W		"	"	
04/12/1963	42	40	40	N		"	"	
07/09/1964	41	39	39	N		"	"	
05/12/1965	45	42	42	N		"	"	
02/13/1966	42	40	40	SW		"	"	
05/07/1967	32	31	31	SW		"	"	
07/31/1968	38	36	39	W		"	20G	
07/02/1969	38	36	39	E		"	"	
06/27/1970	44	42	46	NW		"	"	
02/13/1971	40	38	42	W		"	"	
06/10/1972	43	41	45	NW		"	"	
03/17/1973	42	40	44	W		"	"	
03/21/1974	41	39	43	W		"	"	
01/25/1975	38	36	39	W		"	"	
02/01/1976	44	42	46	NW		"	"	
09/10/1977	50	47	51	W		"	"	
01/26/1978	42	40	44	W		"	"	
09/04/1979	63	58	63	E	T	"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	46
.80	5	54
.90	10	59
.95	20	65
.96	25	67
.98	50	73
.99	100	77
.995	200	81
.998	500	85
.999	1000	88

BURRWOOD, LOUISIANA WBO* Z_o=.05 P_n=.66 1908-1948 28 58 89 23
WBAN #12863 P_t=.34

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/11/1908	58	46	45	UNK		4c	36R	
06/27/1909	60	47	46	UNK	T	"	"	
01/21/1910	60	47	46	UNK		"	"	
11/12/1911	72	56	55	NW		"	"	
10/13/1912	70	54	53	NW		"	"	
10/23/1913	78	60	59	UNK		"	"	
06/27/1914	60	47	47	UNK		"	33R	
09/29/1915	140	105	105	UNK	T	"	"	
07/05/1916	78	60	60	UNK	T	"	"	
09/28/1917	96	73	73	UNK	T	"	"	
01/12/1918	66	51	51	UNK		"	"	
09/13/1919	65	51	51	UNK	T	"	"	
09/21/1920	59	46	46	UNK	T	"	"	
07/20/1921	60	47	47	UNK		"	"	
01/29/1922	70	54	54	UNK		"	"	
10/15/1923	59	46	46	SE	T	"	"	
01/10/1924	59	46	46	UNK		"	"	
12/19/1925	59	46	46	UNK		"	"	
08/25/1926	61	48	48	UNK	T	"	"	
09/18/1927	42	34	34	UNK		"	"	
02/22/1928	100	91	85	UNK		3c	50R	
10/28/1929	54	50	47	UNK		"	"	
08/20/1930	66	61	57	UNK		"	"	
07/15/1931	63	58	54	UNK	T	"	"	
05/19/1932	60	56	52	UNK		"	"	
02/ ?/1933	52	49	46	UNK		"	"	
07/24/1934	66	61	57	UNK	T	"	"	
1935	MISSING							
1936	MISSING							
1937	MISSING							
1938	MISSING							
07/16/1939	60	56	52	UNK		"	"	
1940	MISSING							
1941	MISSING							
03/08/1942	46	43	40	W		"	50G	1.
01/19/1943	50	47	44	N		"	"	
01/12/1944	70	65	61	NE		"	"	2.
05/16/1945	60	47	44	E		"	"	
08/19/1946	56	42	49	N		"	"	
09/19/1947	78	72	67	NW	T	"	"	
09/04/1948	62	57	53	S	T	"	"	

REMARKS:

1. Begins 2/2
2. Ends 10/1

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	51
.80	5	63
.90	10	72
.95	20	80
.96	25	83
.98	50	89
.99	100	95
.995	200	100
.998	500	105
.999	1000	109

LAKE CHARLES, LOUISIANA WBO $z_o=.7$ 1921-1930 30 13 93 14
WBAN #13941

Date	Measured Speed	True Speed	Speed at Standard Ht (30M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/14/1921	30	25	56	UNK		4c	28R	
03/09/1922	30	25	56	UNK		"	"	
02/04/1923	40	32	71	UNK		"	"	
04/26/1924	30	25	56	UNK		"	"	
08/17/1925	30	25	56	UNK		"	"	
03/30/1926	38	31	69	UNK		"	"	
03/11/1927	40	32	71	UNK		"	"	
06/14/1928	33	27	60	UNK		"	"	
01/04/1929	40	32	71	UNK		"	"	
02/15/1930	39	32	71	UNK		"	"	1.

REMARKS:

1. Ends 9/30

Probability	Return Period (Years)	30M Wind Speed (mph) Type I Distribution
.50	2	62
.80	5	69
.90	10	74
.95	20	78
.96	25	79
.98	50	83
.99	100	87
.995	200	91
.998	500	97
.999	1000	101

NEW ORLEANS, LOUISIANA (NEW) WBO Z_o=.7 P_n=.76 1889-1971 29 57 90 04
WBAN #12916 P_t=.24

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/20/1889	60	47	59	SW		4c	107R	
02/13/1890	48	38	48	SW		"	"	
09/20/1891	58	46	55	NE		"	120R	
10/22/1892	60	47	56	NE	T	"	"	
12/16/1893	54	43	51	N		"	"	
10/08/1894	60	47	56	NW	T	"	"	
02/07/1895	54	43	51	NW		"	"	
10/27/1896	60	47	56	N		"	"	
04/08/1897	45	36	43	W		"	"	
09/20/1898	49	39	47	SE	T	"	"	
01/06/1899	66	51	61	NW		"	"	
09/08/1900	54	43	51	SE	T	"	"	
08/15/1901	60	47	56	NE	T	"	121R	
07/15/1902	60	47	56	S		"	"	
02/16/1903	55	43	51	NW		"	"	
03/14/1904	43	35	42	N		"	"	
06/17/1905	52	41	49	S		"	"	
06/01/1906	66	51	61	N		"	"	
08/13/1907	62	49	58	SE		"	"	
02/18/1908	46	37	44	SE		"	"	
09/20/1909	78	60	71	SE	T	"	"	
06/10/1910	44	35	42	W		"	"	
08/09/1911	48	38	45	NE	T	"	"	
03/28/1912	50	40	48	SW		"	"	
07/23/1913	46	37	44	S		"	"	
09/03/1914	44	35	42	N		"	"	
09/29/1915	130	98	132	SE	T	"	85R	
05/18/1916	54	43	58	SE		"	"	
07/07/1917	39	32	43	NE		"	"	
06/18/1918	50	40	54	NE		"	"	
09/13/1919	37	30	41	SE	T	"	"	
09/21/1920	48	38	51	SE	T	"	"	
03/31/1921	43	35	47	NW		"	"	
01/29/1922	52	41	55	NE		"	"	
10/16/1923	38	31	42	SE	T	"	"	
05/21/1924	37	30	41	SW		"	"	
09/26/1925	34	28	38	SE		"	"	
08/25/1926	52	41	55	SE	T	"	"	
04/15/1927	33	27	36	E		"	"	
07/03/1928	30	29	39	NE		3c	"	
09/07/1929	26	26	35	SE		"	"	
01/29/1930	32	31	42	NE		"	"	
06/13/1931	32	31	42	NE		"	"	
03/27/1932	35	29	39	SW		4c	"	
09/05/1933	54	43	58	N	T	"	"	
09/22/1934	36	30	41	SE		"	"	
08/06/1935	36	30	41	NE		"	"	
02/20/1936	38	31	42	NE		"	"	
04/04/1937	36	30	41	SE		"	"	
03/23/1938	35	29	39	SW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/26/1939	40	32	43	SW		"	"	
02/16/1940	56	44	59	E		"	"	
09/22/1941	32	27	36	E	T	"	"	
03/08/1942	35	29	39	SW		"	"	
01/19/1943	34	28	38	NE		"	"	
07/14/1944	36	34	46	NE		3c	"	
08/03/1945	32	31	42	E		"	"	
03/27/1946	46	43	58	NW		"	"	
09/19/1947	52	49	66	NE	T	"	"	
09/04/1948	39	37	50	N	T	"	"	
05/30/1949	29	28	38	NE		"	"	
02/13/1950	26	26	35	SE		"	"	
08/16/1951	24	24	32	NE		"	"	
12/30/1952	31	30	41	SW		"	"	
04/29/1953	35	34	46	SE		"	"	
08/15/1954	30	29	39	NE		"	"	
01/18/1955	35	34	46	W		"	"	
09/24/1956	43	41	55	NE	T	"	"	
06/27/1957	28	27	36	S	T	"	"	
01/23/1958	28	27	36	NE		"	"	
01/21/1959	26	26	35	SW		"	87R	
06/06/1960	33	32	43	NE		"	"	
02/06/1961	28	27	36	E		"	"	
06/19/1962	40	38	51	W		"	"	
02/11/1963	27	26	53	NE		"	33R	
10/04/1964	24	24	49	W	T	"	"	
01/30/1965	20	20	40	W		"	"	
01/29/1966	30	29	59	NW		"	"	
12/22/1967	26	26	53	NW		"	"	
12/27/1968	27	26	53	NW		"	"	
08/17/1969	39	37	75	NW	T	"	"	
07/04/1970	34	33	67	NW		"	"	
02/07/1971	24	24	49	NW		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	46
.80	5	56
.90	10	65
.95	20	76
.96	25	84
.98	50	89
.99	100	98
.995	200	104
.998	500	114
.999	1000	121

PORT EADS, LOUISIANA WBO* z_o=.05 P_n=.79 1881-1882 29 01 89 10
P_t=.21 1889-1905
1928-1941

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/25/1881	60	47	46	E		4c	E36R	1.
09/08/1882	115	87	86	NE	T	"	"	
04/13/1889	55	43	42	UNK		"	36R	
05/05/1890	60	47	46	UNK		"	"	
11/09/1891	44	35	34	UNK		"	"	2.
07/22/1892	58	46	45	UNK		"	"	3.
11/26/1893	76	59	58	UNK		"	"	
05/18/1894	60	47	46	UNK		"	"	4.
01/29/1895	70	54	53	UNK		"	"	5.
03/11/1896	75	58	57	UNK		"	"	6.
09/12/1897	80	62	61	UNK	T	"	"	
01/22/1898	66	51	50	UNK		"	"	
02/12/1899	60	47	46	UNK		"	"	
08/04/1900	66	51	50	UNK		"	"	
08/14/1901	78	60	59	UNK	T	"	"	
12/04/1902	60	47	46	UNK		"	"	
02/16/1903	52	41	40	UNK		"	"	
07/27/1904	49	39	38	UNK		"	"	
04/12/1905	84	65	64	UNK		"	"	
02/15/1928	48	38	38	N		"	35R	
09/06/1929	42	34	34	S		"	"	
07/11/1930	52	41	41	NE		"	"	
07/15/1931	40	32	32	SE	T	"	"	
07/17/1932	64	50	49	E		"	"	
07/26/1933	56	44	44	SW	T	"	"	
01/31/1934	60	47	46	SE		"	"	
12/31/1935	45	42	42	E		3c	"	
08/02/1936	46	37	37	SW		4c	"	
04/30/1937	55	43	43	E		"	"	
01/24/1938	51	41	41	UNK		"	"	
07/16/1939	60	47	46	UNK		"	"	
08/05/1940	78	60	59	UNK	T	"	"	
09/11/1941	62	49	48	UNK	T	"	"	

REMARKS:

1. Begins 4/1
2. Days Missing
3. Days Missing
4. Ends 10/1
5. 7 Mo. Missing
6. 2 Mo. Missing

Probability	Return Period (Years	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	45
.80	5	54
.90	10	61
.95	20	69
.96	25	71
.98	50	76
.99	100	82
.995	200	87
.998	500	92
.999	1000	96

EASTPORT, MAINE (EPO) WBO** z_o=.4 1873-1951 44 54 66 54
WBAN #14608

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/08/1873	72	56	62	UNK		4c	E58R	1.
04/26/1874	75	58	64	UNK		"	"	
03/25/1875	84	65	72	UNK		"	"	
03/17/1876	80	62	68	UNK		"	"	
05/10/1877	76	59	65	NE		"	"	
01/11/1878	84	65	72	E		"	"	
1879	MISSING							
02/03/1880	72	56	62	NE		"	"	
05/17/1881	78	60	66	NE		"	"	
02/22/1882	80	62	68	NE		"	"	
11/27/1883	60	47	52	SE		"	"	
02/28/1884	72	56	62	NE		"	"	
01/28/1885	72	56	62	NE		"	"	
01/09/1886	72	56	62	NE		"	"	
01/14/1887	76	59	65	NE		"	58R	
03/13/1888	83	64	71	E		"	"	
01/21/1889	78	60	66	SE		"	"	
12/27/1890	60	47	52	SE		"	"	
04/03/1891	64	50	55	E		"	"	
02/11/1892	72	56	62	NE		"	"	
05/04/1893	60	47	52	E		"	"	
01/30/1894	90	69	71	NE		"	74R	
02/08/1895	80	62	64	E		"	"	
03/01/1896	75	58	60	E		"	"	
01/28/1897	73	57	59	E		"	"	
12/05/1898	75	58	60	E		"	"	
02/13/1899	90	69	71	NE		"	"	
02/22/1900	90	69	71	E		"	"	
04/07/1901	66	51	52	E		"	"	
02/17/1902	60	47	48	NE		"	"	
12/20/1903	70	54	54	SE		"	85R	
11/14/1904	60	47	47	NE		"	"	
04/06/1905	76	59	59	SE		"	"	
01/16/1906	78	60	60	SE		"	"	
11/07/1907	70	54	54	E		"	"	
02/01/1908	82	63	63	SE		"	"	
11/25/1909	88	68	68	NE		"	"	
02/12/1910	72	56	56	NE		"	"	
12/29/1911	60	47	47	W		"	"	
01/15/1912	80	62	62	NE		"	"	
01/04/1913	60	47	47	S		"	"	
02/14/1914	80	62	62	NE		"	"	
12/14/1915	66	51	51	NE		"	"	
12/16/1916	96	73	72	NE		"	"	
12/14/1917	109	83	82	E		"	"	
01/15/1918	78	60	60	E		"	"	
11/05/1919	100	76	75	NE		"	"	
01/17/1920	78	60	60	E		"	"	
04/03/1921	62	49	49	NW		"	"	
01/11/1922	82	63	63	NE		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/07/1923	74	57	57	NE		"	"	
05/01/1924	74	57	57	E		"	"	
01/30/1925	84	65	65	NE		"	"	
03/29/1926	62	49	49	NW		"	"	
02/26/1927	73	57	57	NE		"	"	
01/25/1928	76	70	70	S		3c	"	
04/16/1929	62	57	57	E		"	"	
03/08/1930	58	54	54	NE		"	"	
03/09/1931	66	61	61	E		"	"	
04/12/1932	61	48	48	E		4c	"	
12/21/1933	66	51	51	E		"	"	
12/20/1934	78	60	60	SE		"	"	
11/17/1935	72	56	56	E		"	"	
12/20/1936	68	53	53	SE		"	"	
02/22/1937	66	51	51	E		"	"	
01/25/1938	66	51	51	S		"	"	
04/02/1939	70	54	54	E		"	"	
04/21/1940	72	56	56	NE		"	"	
02/08/1941	56	52	52	E		3c	"	
12/02/1942	56	52	52	SE		"	"	
01/20/1943	50	47	47	NW		"	"	
12/12/1944	62	57	57	E		"	"	
11/20/1945	65	60	60	E		"	"	
01/25/1946	54	50	50	S		"	"	
03/03/1947	61	57	57	E		"	"	
12/31/1948	53	49	49	E		"	"	
11/04/1949	56	52	52	NE		"	"	
03/23/1950	60	56	56	NE		"	"	
02/07/1951	61	57	57	S		"	"	

REMARKS:

1. Begins 4/1

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	58
.80	5	65
.90	10	70
.95	20	74
.96	25	75
.98	50	80
.99	100	84
.995	200	88
.998	500	94
.999	1000	98

PORTLAND, MAINE WBO z_o=.7 1873-1940 43 39 70 15
WBAN #94734

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/28/1873	43	35	47	UNK		4c	E87R	
12/21/1874	59	46	62	N		"	87R	
11/11/1875	60	47	63	E		"	"	
03/21/1876	71	55	74	SE		"	"	
03/09/1877	54	43	58	S		"	"	
12/10/1878	73	57	76	SE		"	"	
08/19/1879	52	41	55	NW	T	"	"	
03/24/1880	48	38	51	NW		"	"	
01/21/1881	51	41	55	NE		"	"	
12/08/1882	58	46	62	W		"	"	
01/31/1883	60	47	63	SE		"	"	
01/09/1884	86	66	88	SE		"	"	
11/02/1885	68	53	71	SE		"	"	
11/07/1886	54	43	58	S		"	"	
12/28/1887	60	47	63	SW		"	"	
03/12/1888	48	38	51	NE		"	"	
01/21/1889	53	42	56	SE		"	"	
02/14/1890	46	37	50	S		"	"	
01/22/1891	54	43	58	SE		"	"	
11/18/1892	53	42	56	S		"	"	
01/02/1893	60	47	63	S		"	"	
11/03/1894	50	40	53	S		"	89R	
12/27/1895	57	45	60	SE		"	"	
02/06/1896	48	38	51	NE		"	"	
05/23/1897	48	38	51	S		"	"	
12/05/1898	50	40	53	E		"	"	
02/13/1899	50	40	53	N		"	"	
12/05/1900	60	47	57	NE		"	117R	
12/15/1901	60	47	57	SE		"	"	
03/02/1902	48	38	46	S		"	"	
09/17/1903	50	40	49	SE	T	"	"	
10/21/1904	53	42	51	SE		"	"	
01/07/1905	64	50	61	SE		"	"	
03/20/1906	50	40	49	NE		"	"	
03/20/1907	62	49	60	NW		"	"	
02/01/1908	80	62	76	SE		"	"	
03/25/1909	78	60	73	E		"	"	
10/02/1910	64	50	61	NW		"	"	
12/29/1911	55	44	54	NW		"	"	
11/25/1912	54	43	52	E		"	"	
01/03/1913	52	41	50	S		"	"	
03/01/1914	60	47	57	SE		"	"	
09/27/1915	57	45	55	NW		"	"	
01/28/1916	50	40	49	NW		"	"	
12/14/1917	63	49	60	SE		"	"	
03/03/1918	62	49	60	NW		"	"	
01/24/1919	52	41	50	NW		"	"	
12/14/1920	54	43	52	SE		"	"	
05/22/1921	64	50	61	NW		"	"	
03/07/1922	50	40	49	SE		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/29/1923	53	42	51	SE		"	"	
04/07/1924	55	43	52	E		"	"	
11/13/1925	60	47	58	E		"	"	
11/16/1926	54	43	52	S		"	"	
11/04/1927	70	54	66	SE	T	"	"	
01/25/1928	44	42	51	S		3c	"	
04/16/1929	40	38	46	NE		"	"	
04/07/1930	40	38	46	NE		"	"	
03/08/1931	43	41	50	E		"	"	
11/19/1932	66	51	62	S		4c	"	
02/27/1933	66	51	62	NW		"	"	
12/19/1934	74	57	69	SE		"	"	
03/03/1935	51	41	50	NW		"	"	
12/20/1936	71	55	67	SE		"	"	
10/23/1937	56	45	55	S		"	"	
01/25/1938	65	51	62	S		"	"	
09/10/1939	52	49	60	S		"	"	
11/25/1940	58	54	66	NW		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Type I Distribution
.50	2	56
.80	5	63
.90	10	68
.95	20	72
.96	25	74
.98	50	78
.99	100	82
.995	200	87
.998	500	92
.999	1000	97

PORTLAND, MAINE (PUM) APT z_o=.05 1941-1979 43 39 70 19
WBAN #14764

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/25/1941	42	44	40	W		4c-x	61R	
12/02/1942	54	56	51	SE		"	"	
01/20/1943	46	48	44	W		"	"	
02/15/1944	56	58	56	W		"	43R	
11/30/1945	74	76	73	NE		"	"	
04/18/1846	55	57	55	S		"	"	
03/03/1947	74	76	73	NE		"	"	
12/31/1948	42	44	41	E		"	55R	
04/19/1949	51	53	49	E		"	"	
11/26/1950	64	66	61	E		"	"	
02/07/1951	52	54	50	S		"	"	
02/18/1952	56	58	54	N		"	"	
11/25/1953	48	50	46	SE		"	"	
08/31/1954	67	69	64	E	T	"	"	
03/17/1955	50	52	48	SW		"	"	
01/08/1956	47	44	41	NE		3c	"	
12/26/1957	66	61	56	SE		"	"	
04/02/1958	48	45	42	N		"	"	
12/07/1959	49	46	42	S		"	"	
09/12/1960	67	62	57	SE	T	"	"	
03/09/1961	44	42	39	E		"	"	
12/06/1962	48	45	42	E		"	"	
04/20/1963	52	49	45	W		"	"	
02/03/1964	46	43	40	NW		"	"	
11/04/1965	45	42	46	NW		"	20G	
01/30/1966	42	40	44	NE		"	"	
02/16/1967	43	41	45	W		"	"	
02/17/1968	42	40	44	W		"	"	
06/20/1969	48	45	49	SW		"	"	
03/27/1970	40	38	42	NW		"	"	
01/30/1971	40	38	42	W		"	"	
01/25/1972	44	42	46	NW		"	"	
12/09/1973	40	38	42	SE		"	"	
01/31/1974	46	43	47	NW		"	"	
04/20/1975	43	41	45	W		"	"	
12/11/1976	55	51	56	NW		"	"	
02/25/1977	40	38	42	E		"	"	
01/09/1978	51	48	52	SE		"	"	
04/06/1979	37	35	38	W		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	47
.80	5	54
.90	10	58
.95	20	62
.96	25	64
.98	50	68
.99	100	72
.995	200	76
.998	500	81
.999	1000	85

BALTIMORE, MARYLAND WBO z_o=.7 1872-1947, 1950 39 18 76 37
WBAN #13777

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/25/1872	46	37	52	UNK	T	4c	75R	
03/29/1873	44	35	49	S		"	"	
11/23/1874	46	37	52	NW		"	"	
03/17/1875	38	31	44	NW		"	"	
02/02/1876	50	40	56	NW		"	"	
11/24/1877	42	34	48	E		"	"	
10/23/1878	50	40	54	SW	T	"	86R	
04/03/1879	66	51	69	NW		"	"	
06/25/1880	44	35	47	NW		"	"	
02/23/1881	42	34	46	NW		"	"	
01/22/1882	36	30	40	NW		"	"	
11/12/1883	38	31	42	NW		"	"	
07/31/1884	50	40	54	NW		"	"	
01/17/1885	60	47	63	NW		"	"	
02/28/1886	50	40	54	NW		"	"	
02/11/1887	47	38	51	NW		"	"	
08/08/1888	48	38	51	SW		"	"	
04/26/1889	40	32	41	NE		"	101R	
12/17/1890	50	40	51	NE		"	"	
11/23/1891	60	47	60	S		"	"	
11/15/1892	50	40	51	NE		"	"	
02/19/1893	55	43	55	NW		"	"	
01/30/1894	60	47	60	NW		"	"	
02/08/1895	50	40	51	W		"	"	
03/19/1896	60	47	50	E		"	146R	
02/02/1897	38	31	38	N		"	117R	
12/04/1898	60	47	57	E		"	"	
03/29/1899	31	26	32	W		"	"	
11/09/1900	32	27	33	W		"	"	
11/24/1901	36	30	37	NE		"	"	
07/20/1902	75	58	71	W		"	"	
07/12/1903	60	47	57	W		"	"	
06/05/1904	55	43	52	W		"	"	
12/30/1905	52	41	50	W		"	"	
01/06/1906	56	44	54	W		"	"	
12/30/1907	60	47	57	W		"	"	
01/12/1908	48	38	35	NE		"	215R	
02/06/1909	44	35	32	SW		"	"	
05/24/1910	40	32	30	SW		"	"	
06/10/1911	45	36	33	NW		"	"	
02/22/1912	48	38	35	SW		"	"	
01/03/1913	46	37	34	SW		"	"	
03/02/1914	48	38	35	W		"	"	
01/13/1915	50	40	37	N		"	"	
12/22/1916	38	31	29	SW		"	"	
12/08/1917	34	28	26	SW		"	"	
01/12/1918	50	40	37	S		"	"	
03/29/1919	34	28	26	NW		"	"	
06/16/1920	44	35	32	NW		"	"	
07/28/1921	31	26	24	S		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/11/1922	48	38	35	NE		"	"	
02/14/1923	42	34	31	SW		"	"	
05/11/1924	40	32	30	NE		"	"	
05/07/1925	37	30	28	SW		"	"	
11/16/1926	60	47	43	SE		"	"	
08/08/1927	60	47	43	SW		"	"	
01/25/1928	54	50	46	SW		3c	"	
03/07/1929	64	59	55	SW		"	"	
04/07/1930	52	49	45	SW		"	"	
07/01/1931	66	61	56	NE		"	"	
03/06/1932	72	56	52	NW		4c	"	
08/23/1933	74	57	53	NE	T	"	"	
12/20/1934	64	50	46	SW		"	"	
01/14/1935	65	51	47	NW		"	"	
01/23/1936	64	50	46	SW		"	"	
08/12/1937	78	60	55	SW		"	"	
04/09/1938	66	51	47	SW		"	"	
01/22/1939	70	54	50	SW		"	"	
06/13/1940	64	50	46	SW		"	"	
02/13/1941	68	53	49	SW		"	"	
03/09/1942	56	52	48	SW		3c	"	
01/19/1943	48	45	42	SW		"	"	
02/01/1944	52	49	45	NW		"	"	
05/22/1945	52	49	45	SW		"	"	
06/18/1946	62	57	53	NW		"	"	
03/25/1947	60	56	52	SW		"	"	
11/25/1950	55	55	51	E		3c-0	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	44
.80	5	51
.90	10	56
.95	20	60
.96	25	61
.98	50	66
.99	100	70
.995	200	74
.998	500	79
.999	1000	83

BALTIMORE, MARYLAND (BAL) APT z_0=.05 1948-1949 39 15 76 32
WBAN #93721 1951-1979 39 11 76 40

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/09/1948	70	65	58	W		3c	73R	
03/12/1949	72	66	59	W		"	"	
02/08/1951	56	56	47	NW		3c-o	133R	
03/11/1952	80	80	67	SE		"	"	
12/31/1953	57	57	48	W		"	"	
10/15/1954	79	73	61	SE	T	3c	"	
05/29/1955	70	65	55	SW		"	"	
02/25/1956	74	68	57	W		"	"	
10/06/1957	71	65	55	NE		"	"	
01/25/1958	68	63	53	NE		"	"	
12/07/1959	60	56	47	W		"	"	
02/19/1960	52	49	54	NW		"	20G	
05/09/1961	70	65	71	SW		"	"	
07/21/1962	62	57	62	NW		"	"	
04/23/1963	60	56	61	NW		"	"	
03/10/1964	61	57	62	NW		"	"	
02/25/1965	54	50	55	SW		"	"	
01/30/1966	50	47	51	W		"	"	
02/16/1967	53	49	54	W		"	"	
02/17/1968	50	47	51	NW		"	"	
07/12/1969	52	49	54	NW		"	"	
04/02/1970	60	56	61	NW		"	"	
01/26/1971	58	54	59	NW		"	"	
01/25/1972	40	38	42	SW		"	"	
03/17/1973	49	46	50	W		"	"	
12/01/1974	46	43	47	E		"	"	
04/03/1975	54	50	55	W		"	"	
03/13/1976	54	50	55	NW		"	"	
03/31/1977	49	46	50	W		"	"	
01/26/1978	52	48	53	SW		"	"	
01/18/1979	47	44	48	NW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	60
.90	10	65
.95	20	69
.96	25	70
.98	50	74
.99	100	78
.995	200	82
.998	500	87
.999	1000	91

BOSTON, MASSACHUSETTS WBO z_o=.7 1872-1935 42 21 71 04
WBAN #94701 1945

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/01/1872	55	43	43	UNK		4c	E172R	
03/16/1873	42	34	34	UNK		"	"	
04/30/1874	43	35	35	NW		"	"	
11/29/1875	80	62	62	W			172R	
02/02/1876	71	55	55	SW		"	"	
03/09/1877	80	62	62	SE		"	"	
12/10/1878	72	56	56	SE		"	"	
01/26/1879	83	64	64	NW		"	"	
02/03/1880	88	68	68	E		"	"	
03/30/1881	66	51	51	NE		"	"	
02/21/1882	62	49	49	NE		"	"	
11/12/1883	60	47	47	NW		"	"	
11/23/1884	70	54	52	S		"	188R	
04/29/1885	72	56	54	N		"	"	
01/09/1886	80	62	60	NE		"	"	
02/11/1887	76	59	57	NW		"	"	
11/26/1888	68	53	51	NE		"	"	
12/26/1889	60	47	45	W		"	"	
12/17/1890	60	47	45	NE		"	"	
12/30/1891	72	56	54	S		"	"	
03/11/1892	58	46	44	W		"	"	
08/29/1893	75	58	56	S	T	"	"	
01/29/1894	60	47	45	NE		"	"	
12/31/1895	60	47	45	S		"	"	
02/06/1896	65	51	49	SE		"	"	
07/14/1897	60	47	45	S		"	"	
11/27/1898	72	56	54	N		"	"	
03/07/1899	60	47	45	NE		"	"	
12/04/1900	78	60	58	E		"	"	
11/24/1901	60	47	45	NE		"	"	
02/03/1902	60	47	45	W		"	"	
01/03/1903	60	47	45	E		"	"	
10/21/1904	60	47	45	S		"	"	
12/21/1905	54	43	42	E		"	"	
03/19/1906	54	43	42	E		"	"	
03/20/1907	66	51	49	NW		"	"	
01/07/1908	64	50	48	SW		"	"	
12/26/1909	61	48	46	NE		"	"	
02/12/1910	60	47	45	NE		"	"	
12/28/1911	58	46	44	W		"	"	
02/22/1912	68	53	51	W		"	"	
01/04/1913	60	47	45	W		"	"	
03/01/1914	60	47	45	E		"	"	
12/13/1915	60	47	45	NE		"	"	
12/23/1916	56	44	42	W		"	"	
10/24/1917	60	47	45	NE		"	"	
02/26/1918	50	40	39	W		"	"	
12/10/1919	46	37	36	NW		"	"	
11/23/1920	62	49	47	NE		"	"	

Date	Measured Speed	Time Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/05/1921	48	38	37	W		"	"	
01/11/1922	60	47	45	NE		"	"	
03/28/1923	55	43	42	NW		"	"	
01/21/1924	56	44	42	W		"	"	
10/25/1925	58	46	44	W		"	"	
11/16/1926	60	47	45	S		"	"	
02/04/1927	50	40	39	W		"	"	
01/25/1928	50	47	45	SW		3c	"	
04/02/1929	46	43	42	W		"	"	
05/07/1930	37	35	34	N		"	"	
03/26/1931	35	34	33	NE		"	"	
03/31/1932	43	35	34	S		4c	"	
10/25/1933	82	63	52	NW		"	360R	
12/26/1934	80	73	60	W		3c	"	
04/09/1935	72	63	52	NE		4c-b	"	
11/29/1945	73	67	55	NE		3c	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	46
.80	5	52
.90	10	56
.95	20	60
.96	25	61
.98	50	65
.99	100	68
.995	200	72
.998	500	77
.999	1000	80

BOSTON, MASSACHUSETTS (BOS) APT z_o=.05 1936-1944 42 22 71 02
WBAN #14739 1946-1953 42 22 71 02
1959-1979

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Typed	Anem Type	Anem Ht	Remarks
10/17/1936	60	53	50	SW		4c-b	50R	
10/20/1937	68	60	55	S		"	62R	
09/21/1938	100	87	79	SE	T	"	"	
11/05/1939	71	62	56	NE		"	"	
02/14/1940	66	58	53	NE		"	"	
02/07/1941	43	45	41	E		4c-x	"	
12/02/1942	48	50	45	SE		"	"	
12/11/1943	54	56	51	NW		"	"	
09/14/1944	70	72	65	NE	T	"	"	
02/20/1946	48	50	45	E		4c-x	62R	
03/03/1947	71	73	66	E		"	"	
10/25/1948	50	52	47	NE		"	"	
08/29/1949	48	50	45	SW	T	"	"	
11/26/1950	78	80	73	SE		"	"	
11/03/1951	54	56	51	SW		"	"	
02/18/1952	62	57	57	N		3c	34R	
11/07/1953	E73	67	67	NE		"	"	
03/06/1959	50	47	47	SW		"	"	
09/12/1960	62	57	57	S	T	"	"	
02/04/1961	52	49	49	NE		"	"	
12/30/1962	52	49	49	NW		"	"	
04/05/1963	56	52	52	NW		"	"	
07/01/1964	48	45	48	N		"	22G	
11/04/1965	46	43	46	NW		"	"	
12/24/1966	50	47	50	NE		"	"	
05/25/1967	54	50	54	NE		"	"	
11/12/1968	58	54	58	NE		"	"	
01/01/1969	55	51	55	W		"	"	
02/03/1970	62	57	61	S		"	"	
03/04/1971	59	55	59	SW		"	"	
11/08/1972	51	48	52	NE		"	"	
09/06/1973	52	49	53	NW		"	"	
01/31/1974	66	61	66	NW		"	"	
01/29/1975	42	40	43	NW		"	"	
12/10/1976	49	46	49	W		"	"	
03/22/1977	60	56	60	NE		"	"	
02/06/1978	66	61	66	NE		"	"	
01/25/1979	48	45	48	E		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	53
.80	5	60
.90	10	65
.95	20	70
.96	25	72
.98	50	76
.99	100	81
.995	200	86
.998	500	92
.999	1000	96

NANTUCKET, MASSACHUSETTS WBO** z_o=.4 P_n=.87 1887-1946 41 17 70 06
WBAN #94771 P_t=.13 1947-1969 41 15 70 04

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/02/1887	68	53	60	NE		4c	E54R	
03/12/1888	66	51	58	SE		"	"	
03/16/1889	65	51	58	NE		"	"	
10/24/1890	80	62	70	NE		"	"	
10/13/1891	80	62	70	SE	T	"	"	
03/03/1892	65	51	58	NE		"	"	
12/05/1893	70	54	54	NE		"	82R	
04/11/1894	100	76	76	SE		"	"	
12/11/1895	60	47	47	E		"	"	
12/17/1896	105	80	80	NE		"	"	
10/21/1897	60	47	47	NE	T	"	"	
11/27/1898	90	69	69	NE		"	"	
02/13/1899	80	62	62	NE		"	"	
12/05/1900	75	58	58	SW		"	"	
11/24/1901	90	69	69	E		"	"	
12/05/1902	80	62	62	N		"	"	
12/26/1903	60	47	47	NW		"	"	
09/15/1904	72	56	56	W	T	"	"	
01/25/1905	78	60	59	NE		"	90R	
02/28/1906	72	56	55	NE		"	"	
02/05/1907	81	62	61	NE		"	"	
01/24/1908	96	73	71	NE		"	"	
11/24/1909	76	59	58	NE		"	"	
01/14/1910	72	56	55	NE		"	"	
04/20/1911	79	61	60	NE		"	"	
02/22/1912	90	69	68	SW		"	"	
01/04/1913	80	62	61	SW		"	"	
03/01/1914	120	91	89	E		"	"	
12/13/1915	90	69	68	E		"	"	
03/04/1916	75	58	57	NE		"	"	
12/14/1917	105	80	78	SE		"	"	
12/17/1918	60	47	46	NE		"	"	
01/10/1919	60	47	46	SW		"	"	
02/15/1920	87	67	66	SW		"	"	
02/20/1921	90	69	68	NE		"	"	
01/30/1922	75	58	57	NE		"	"	
01/04/1923	65	51	50	NE		"	"	
03/11/1924	79	61	60	NE		"	"	
01/30/1925	71	55	54	SW		"	"	
02/04/1926	90	69	68	NE		"	"	
02/20/1927	80	62	61	NE	T	"	"	
01/25/1928	77	60	59	SW		"	"	
04/16/1929	75	69	68	E		3c	"	
12/27/1930	75	69	68	NE		"	"	
03/04/1931	60	56	55	NE		"	"	
01/10/1932	90	69	68	NE		4c	"	
07/04/1933	80	62	61	NE		"	"	
03/11/1934	120	91	89	NE		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/17/1935	72	66	65	NE		3c	"	
06/24/1936	75	58	57	NE		4c	"	
02/17/1937	60	56	55	NE		3c	"	
09/21/1938	73	57	56	SE	T	4c	"	
05/03/1939	56	52	51	NE		3c	"	
09/02/1940	70	65	64	NE	T	3c	"	
03/01/1941	54	56	55	NE		4c-x	"	
01/28/1942	46	48	52	NE		"	63R	
04/19/1943	56	52	56	NE		3c	"	
09/15/1944	86	79	85	SW	T	"	"	
06/27/1945	74	68	73	NE	T	"	"	
02/20/1946	56	52	56	E		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	61
.80	5	71
.90	10	79
.95	20	88
.96	25	91
.98	50	99
.99	100	106
.995	200	112
.998	500	120
.999	1000	126

NANTUCKET, MASSACHUSETTS (ACK) APT z_o=.05   1947-1969   41 15   70 04
WBAN #14756

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/12/1947	76	70	69	NW		"	36R	
01/02/1948	60	56	55	E		"	"	
02/28/1949	58	54	53	E		"	"	
09/11/1950	78	72	71	NE	T	"	"	
02/04/1951	56	52	51	NE		"	"	
02/27/1952	66	61	60	NW		"	"	
11/07/1953	60	56	55	NE		"	38R	
09/11/1954	79	73	71	SE	T	"	"	
03/27/1955	57	53	52	SW		"	"	
03/17/1956	79	73	71	N		"	"	
12/05/1957	60	56	55	N		"	"	
03/14/1958	64	59	58	E		"	"	
03/12/1959	54	50	55	SE		"	20G	
03/04/1960	64	59	65	N		"	"	
02/04/1961	60	56	61	E		"	"	
11/15/1962	54	50	55	NW		"	"	
11/30/1963	70	65	71	SW		"	"	
01/28/1964	52	49	54	NW		"	"	
02/25/1965	50	47	51	E		"	"	
12/25/1966	E59	55	60	S		"	"	
04/28/1967	68	63	69	N		"	"	
02/08/1968	60	56	61	NE		"	"	
01/01/1969	50	47	51	N		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	58
.80	5	65
.90	10	70
.95	20	74
.96	25	76
.98	50	80
.99	100	84
.995	200	89
.998	500	94
.999	1000	98

THATCHERS IS., MASSACHUSETTS WBO* z_o=.05 1877-1884 42 38 70 34

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/09/1877	66	51	48	UNK		4c	E50R	
01/11/1878	80	62	58	NE		"	"	
11/03/1879	76	61	57	E		"	"	
12/26/1880	128	97	91	E		"	"	
03/11/1881	84	65	61	NW		"	"	
01/27/1882	77	60	56	NW		"	"	
10/29/1883	77	60	56	SE		"	"	
02/20/1884	67	52	49	NW		"	"	

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	57
.80	5	66
.90	10	72
.95	20	78
.96	25	80
.98	50	86
.99	100	91
.995	200	97
.998	500	105
.999	1000	110

VINEYARD HAVEN, MASSACHUSETTS WBO** $z_o=.4$ 1891-1899 41 26 70 43

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/23/1891	56	44	49	UNK		4c	55R	
11/30/1892	60	47	53	UNK		"	"	
04/21/1893	60	47	53	UNK		"	"	
01/29/1894	60	47	53	UNK		"	"	
01/26/1895	80	62	70	UNK		"	"	
09/10/1896	62	49	55	UNK	T	"	"	
02/03/1897	60	47	53	UNK		"	"	
01/31/1898	65	51	57	UNK		"	"	
03/07/1899	58	46	52	UNK		"	"	

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	58
.90	10	61
.95	20	63
.96	25	64
.98	50	67
.99	100	69
.995	200	72
.998	500	75
.999	1000	78

WOODS HOLE, MASSACHUSETTS WBO** z_o=.4 1874-1881 41 32 70 40
1888-1900

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/14/1874	66	51	57	UNK		4c	E57R	
02/03/1875	70	54	60	UNK		"	"	
03/21/1876	70	54	60	UNK		"	"	
11/02/1877	72	56	62	S		"	"	
12/02/1878	78	60	67	S		"	"	
01/26/1879	80	62	69	NW		"	"	
04/30/1880	74	57	63	S		"	"	
01/10/1881	77	60	67	SE		"	"	
09/26/1888	75	58	64	N	T	"	57R	
11/28/1889	65	51	57	SE		"	"	
01/09/1890	70	54	60	NW		"	"	
01/12/1891	83	64	71	W		"	"	
03/11/1892	80	62	69	SW		"	"	
02/20/1893	73	57	63	SW		"	"	
12/27/1894	90	69	77	SW		"	"	
02/08/1895	120	91	101	SW		"	"	
03/03/1896	60	47	52	NW		"	"	
11/12/1897	70	54	60	SW		"	"	
11/27/1898	84	65	72	N		"	"	
02/14/1899	80	62	69	NW		"	"	
02/18/1900	76	59	65	NW		"	"	1.

REMARKS:

1. Ends 6/1

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	64
.80	5	73
.90	10	78
.95	20	83
.96	25	85
.98	50	90
.99	100	95
.995	200	100
.998	500	106
.999	1000	111

CONCORD, NEW HAMPSHIRE WBO z_o=.7 1903-1941 43 12 71 32
WBAN #94756

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/12/1903	40	32	44	W		4c	80R	
11/14/1904	38	31	43	NW		"	"	
05/07/1905	36	30	41	W		"	"	
02/28/1906	36	30	41	NW		"	"	
03/20/1907	48	38	52	NW		"	"	
01/05/1908	42	34	47	NW		"	"	
03/25/1909	46	37	51	E		"	"	
01/04/1910	39	32	44	NW		"	"	
01/28/1911	40	32	44	NW		"	"	
02/22/1912	42	34	47	SW		"	"	
01/03/1913	48	38	52	SW		"	"	
03/01/1914	58	46	63	NE		"	"	
12/26/1915	44	35	48	NW		"	"	
10/17/1916	46	37	51	W		"	"	
01/22/1917	38	31	43	W		"	"	
02/26/1918	50	40	55	W		"	"	
03/10/1919	43	35	48	W		"	"	
03/06/1920	40	32	44	NW		"	"	
11/05/1921	36	30	41	NW		"	"	
01/22/1922	40	32	44	W		"	"	
03/28/1923	36	30	41	W		"	"	
04/07/1924	46	37	51	E		"	"	
11/13/1925	42	34	47	E		"	"	
10/25/1926	34	28	39	SW		"	"	
07/13/1927	33	27	37	W		"	"	
01/25/1928	35	34	47	W		3c	"	
05/03/1929	31	30	41	S		"	"	
02/16/1930	30	29	40	NW		"	"	
03/08/1931	34	33	46	NE		"	"	
01/31/1932	26	26	36	NW		"	"	
1933	Missing							
1934	Missing							
1935	Missing							
1936	Missing							
1937	Missing							
09/21/1938	70	61	87	SE	T	4c-b	72R	
01/23/1939	33	30	43	NW		"	"	
04/06/1940	30	27	39	NW		"	"	
10/23/1941	39	37	53	NW		3c	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	45
.80	5	51
.90	10	55
.95	20	59
.96	25	60
.98	50	64
.99	100	68
.995	200	72
.998	500	76
.999	1000	80

CONCORD, NEW HAMPSHIRE (CON) APT z_0=.05 1942-1979 43 12 71 31
WBAN #14745

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Typed	Anem Type	Anem Ht	Remarks
03/03/1942	42	40	38	NE		3c	45R	
12/11/1943	50	47	45	W		"	"	
03/28/1944	60	62	59	NW		4c-x	"	
04/22/1945	50	52	49	NW		"	"	
01/29/1946	39	41	39	NW		"	"	
03/03/1947	44	46	44	NE		"	"	
12/31/1948	44	42	40	E		3c	"	
12/29/1949	39	37	35	W		"	"	
11/26/1950	78	72	68	NE		"	"	
04/26/1951	42	40	38	W		"	"	
05/12/1952	38	36	34	NE		"	"	
11/07/1953	46	43	41	NE		"	"	
08/31/1954	60	56	53	E	T	"	"	
08/05/1955	37	35	33	NW		"	"	
09/14/1956	45	42	40	SW		"	"	
06/29/1957	40	38	36	SW	T	"	"	
03/21/1958	41	39	37	NE		"	"	
01/06/1959	41	39	37	NW		"	"	
09/12/1960	44	42	40	E	T	"	"	
11/25/1961	34	33	31	NW		"	"	
12/30/1962	56	52	57	NW		"	20G	
04/22/1963	47	44	48	NW		"	"	
12/01/1964	49	46	50	NW		"	"	
11/04/1965	40	38	42	W		"	"	
03/02/1966	40	38	42	W		"	"	
02/16/1967	38	36	39	W		"	"	
08/25/1968	56	52	57	SW		"	"	
01/01/1969	39	37	40	NW		"	"	
01/15/1970	44	42	46	NW		"	"	
07/01/1971	48	45	49	SW		"	"	
01/19/1972	47	44	48	NW		"	"	
01/29/1973	33	32	35	NW		"	"	
03/10/1974	52	49	54	NW		"	"	
01/30/1975	42	40	44	NW		"	"	
03/06/1976	38	36	39	W		"	"	
04/03/1977	34	33	36	W		"	"	
01/26/1978	44	42	46	S		"	"	
12/08/1979	43	41	45	N		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	42
.80	5	49
.90	10	53
.95	20	57
.96	25	58
.98	50	62
.99	100	66
.995	200	70
.998	500	76
.999	1000	80

ATLANTIC CITY, NEW JERSEY (ACY) WBO z_o=.7 P_n=.8 1888-1958 39 22 74 25
WBAN #13724 P_t=.2

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/12/1888	80	62	103	NW		4c	50R	
09/10/1889	100	76	107	NE	T	"	76R	
10/17/1890	60	47	66	NW		"	"	
01/25/1891	66	51	72	NW		"	"	
01/26/1892	60	47	66	NW		"	"	
02/20/1893	60	47	66	NW		"	"	
10/10/1894	60	47	66	E	T	"	"	
1895	Missing							
1896	Missing							
02/02/1897	80	62	87	NE		"	"	
02/16/1898	67	52	73	NW		"	"	
02/13/1899	62	49	69	N		"	"	
07/18/1900	58	46	65	NW		"	"	
01/19/1901	75	58	81	NW		"	"	
04/08/1902	45	36	61	E		"	48R	
09/16/1903	E80	62	105	SE	T	"	"	
10/21/1904	58	46	78	S		"	"	
01/25/1905	58	46	78	NE		"	"	
03/15/1906	42	34	57	NE		"	"	
02/05/1907	47	38	64	NE		"	"	
02/01/1908	46	37	62	S		"	"	
03/04/1909	46	37	62	NE		"	"	
01/21/1910	38	31	52	SE		"	"	
11/28/1911	46	37	62	S		"	"	
02/21/1912	50	40	67	S		"	"	
01/03/1913	48	38	64	S		"	"	
12/07/1914	50	40	67	NE		"	"	
01/13/1915	60	47	79	NE		"	"	
03/28/1916	40	32	54	NE		"	"	
12/08/1917	58	46	78	SE		"	"	
12/17/1918	40	32	54	NE		"	"	
03/28/1919	42	34	57	NW		"	"	
09/30/1920	40	32	54	SE		"	"	
12/18/1921	62	49	49	SW		"	172R	
01/11/1922	77	60	60	NE		"	"	
10/23/1923	88	68	68	NE	T	"	"	
03/11/1924	90	69	69	NE		"	"	
01/02/1925	84	65	65	NE		"	"	
02/04/1926	82	63	63	NE		"	"	
02/20/1927	90	69	69	NE		"	"	
02/23/1928	84	77	77	SE		3c	"	
04/16/1929	88	81	81	NE		"	"	
11/04/1930	76	70	70	NE		"	"	
04/01/1931	66	61	61	NE		"	"	
03/06/1932	90	69	69	NE		4c	"	
08/23/1933	100	76	76	E	T	"	"	
09/08/1934	104	79	79	NW	T	"	"	
04/08/1935	100	76	76	NE		"	"	
09/18/1936	120	91	91	N	T	"	"	
04/26/1937	92	70	70	NE		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/21/1938	78	72	72	NW	T	3c	"	
07/14/1939	66	61	61	SW		"	"	
03/14/1940	78	72	72	SE		"	"	
03/08/1941	70	54	54	NE		4c	"	
03/29/1942	70	65	65	NE		3c	"	
09/30/1943	78	72	72	NE	T	"	"	
09/14/1944	100	91	91	NE	T	"	"	
11/22/1945	70	65	65	SE		"	"	
02/14/1946	66	61	61	S		"	"	
12/16/1947	72	66	66	SE		"	"	
10/05/1948	73	67	67	NE		"	"	
08/29/1949	60	56	56	SE	T	"	"	
11/25/1950	78	72	72	E		"	"	
03/30/1951	70	65	65	S		"	"	
09/01/1952	74	68	68	SE	T	"	"	
11/06/1953	75	69	69	NE		"	"	
10/15/1954	72	66	66	SE	T	"	"	
08/13/1955	70	65	65	S	T	"	"	
09/17/1956	74	68	68	NW		"	"	
10/06/1957	70	65	65	NE		"	"	
01/25/1958	88	80	80	E		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	67
.80	5	77
.90	10	85
.95	20	92
.96	25	94
.98	50	100
.99	100	105
.995	200	109
.998	500	114
.999	1000	117

BARNEGAT, NEW JERSEY WBO* $z_o=.05$ 1877-1885 39 48 74 07

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/30/1877	78	60	56	NE		4c	E50R	
01/31/1878	88	68	64	E		"	"	
08/18/1879	80	62	58	N	T	"	"	
12/26/1880	78	60	56	NE		"	"	
03/30/1881	60	47	44	E		"	"	
09/12/1882	78	60	56	N	T	"	"	
11/12/1883	77	60	56	NW		"	"	
01/09/1884	76	59	55	E		"	"	
02/16/1885	66	51	48	SE		"	"	

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	61
.90	10	65
.95	20	70
.96	25	71
.98	50	75
.99	100	80
.995	200	84
.998	500	89
.999	1000	93

CAPE MAY, NEW JERSEY (WWD) WBO* z_o=.05 P_n=.86 1872-1885 38 56 74 58
P_t=.14 1898-1927

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/20/1872	60	47	42	UNK		4c	E70R	
03/10/1873	55	43	38	UNK		"	"	
11/23/1874	60	47	42	UNK		"	"	
02/25/1875	78	60	54	UNK		"	"	
12/09/1876	86	66	59	UNK		"	"	
10/04/1877	80	62	55	NW	T	"	"	
10/23/1878	110	84	75	E	T	"	"	
11/20/1879	112	85	76	UNK	T	"	"	
03/25/1880	110	84	75	UNK		"	"	
11/20/1881	92	70	63	NW		"	"	
12/07/1882	80	62	55	NW		"	"	
11/12/1883	87	67	60	NW		"	"	
04/10/1884	106	81	72	W		"	"	
01/26/1885	105	80	72	NW		"	"	1.
10/18/1898	62	49	44	E		"	70R	
02/27/1899	64	50	45	W		"	"	
08/06/1900	50	40	37	N		"	56R	
04/13/1901	44	35	32	E		"	"	
03/16/1902	51	41	38	S		"	"	
09/16/1903	63	49	45	NE	T	"	"	
09/15/1904	70	54	50	NW	T	"	"	
11/30/1905	50	40	37	NW		"	"	
04/23/1906	41	33	31	NW		"	"	
12/14/1907	48	38	35	E		"	"	
02/15/1908	66	51	47	S		"	"	
03/03/1909	44	35	32	NE		"	"	2.
12/15/1910	48	38	35	NW		"	"	
10/18/1911	54	43	40	SE		"	"	
02/22/1912	54	43	40	SW		"	"	
01/03/1913	52	41	38	SW		"	49R	
03/01/1914	52	41	38	NW		"	"	
01/12/1915	50	40	38	NE		"	"	
04/15/1916	52	41	38	NW		"	"	
04/05/1917	50	40	38	SE		"	"	
01/12/1918	60	47	44	SE		"	"	
03/29/1919	50	40	38	NW		"	"	
02/04/1920	76	59	55	E		"	"	
05/04/1921	56	44	41	NE		"	"	
01/02/1922	60	47	44	NW		"	"	
10/23/1923	66	51	48	NE	T	"	"	
01/16/1924	65	51	48	SE		"	"	
02/26/1925	49	39	37	NW		"	"	
02/03/1926	43	35	33	NE		"	"	
02/20/1927	64	50	47	NE		"	"	3.

REMARKS:

1. Ends 11/1
2. Ends 12/1
3. Ends 6/1

Probability	Return Period (years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	44
.80	5	54
.90	10	62
.95	20	69
.96	25	70
.98	50	76
.99	100	80
.995	200	84
.998	500	88
.999	1000	91

SANDY HOOK, NEW JERSEY (SGN) WBO* z_o=.05 1877-1879 40 28 74 01
WBAN #94739 1892-1896
1915-1940

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/01/1877	95	73	68	UNK		4c	E54R	
01/31/1878	126	95	88	NE		"	"	
01/02/1879	78	60	56	W		"	"	
01/24/1892	90	69	64	UNK		"	"	
1893	Missing							
10/09/1894	90	69	64	UNK	T	"	"	
02/09/1895	79	61	56	UNK		"	"	
01/23/1896	80	62	57	UNK		"	"	
12/26/1915	80	62	57	W		"	54R	
11/23/1916	88	68	63	S		"	"	
07/02/1917	81	62	57	S		"	"	
02/26/1918	80	62	57	W		"	"	
03/28/1919	92	70	65	NW		"	"	
04/23/1920	80	62	57	NW		"	"	
05/04/1921	76	59	55	NE		"	"	
01/11/1922	84	65	60	NE		"	"	
03/16/1923	80	62	57	S		"	"	
01/11/1924	80	62	57	S		"	"	
10/10/1925	76	59	55	NW		"	"	
11/16/1926	78	60	56	SW		"	"	
02/04/1927	72	56	52	NW		"	"	
01/29/1928	64	59	55	N		3c	"	
04/16/1929	68	63	58	NE		"	"	
11/04/1930	66	61	56	NE		"	"	
04/01/1931	62	57	53	NE		"	"	
11/01/1932	90	78	72	SW		4c-b	"	
07/01/1933	80	62	57	NE		"	"	
09/08/1934	90	78	72	N	T	"	"	
05/29/1935	70	61	56	NW		"	"	
09/18/1936	76	66	61	N	T	"	"	
09/13/1937	64	56	52	N		"	"	
01/25/1938	78	68	63	S		"	"	
02/15/1939	76	66	61	S		"	"	
09/21/1940	70	61	56	W		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	59
.80	5	63
.90	10	67
.95	20	70
.96	25	71
.98	50	74
.99	100	77
.995	200	79
.998	500	83
.999	1000	86

TRENTON, NEW JERSEY (TTN) WBO $Z_0=.7$ 1914-1979 40 13 74 46

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/27/1914	96	73	71	NE		4c	183R	
01/12/1915	80	62	60	NE		"	"	
02/19/1916	60	47	46	NW		"	"	
12/14/1917	70	54	53	NW		"	"	
02/26/1918	78	60	59	W		"	"	
03/28/1919	70	54	53	NW		"	"	
11/17/1920	60	47	46	SW		"	"	
09/30/1921	68	53	52	S		"	"	
06/21/1922	68	53	52	NW		"	"	
03/23/1923	90	69	67	W		"	"	
06/25/1924	74	57	56	NW		"	"	
11/14/1925	76	59	58	NW		"	"	
02/04/1926	60	47	46	NE		"	"	
05/26/1927	62	49	48	W		"	"	
01/25/1928	50	47	46	W		3c	"	
04/16/1929	58	54	53	NE		"	"	
07/22/1930	60	56	55	NW		"	"	
04/01/1931	E50	47	46	NE		"	"	
03/06/1932	72	56	55	NE		4c	"	
02/08/1933	58	46	58	NW		"	107R	
07/15/1934	66	51	64	NW		"	"	
01/14/1935	54	43	54	NW		"	"	
05/18/1936	61	48	60	S		"	"	
02/22/1937	51	41	51	SE		"	"	
02/28/1938	47	44	55	NW		3c	"	
02/15/1939	54	50	63	S		"	"	
03/14/1940	43	41	51	SE		"	"	
05/22/1941	48	45	56	NW		"	"	
03/09/1942	43	41	51	S		"	"	
12/11/1943	46	43	54	N		"	"	
09/14/1944	58	54	68	N	T	"	"	
07/02/1945	61	57	71	SW		"	"	
02/15/1946	42	40	50	NW		"	"	
08/26/1947	47	44	55	NE		"	"	
10/24/1948	38	36	45	N		"	"	
04/23/1949	38	36	45	NW		"	"	
11/25/1950	69	64	80	E		"	"	
10/07/1951	65	60	75	NW		"	"	
10/02/1952	52	49	61	NW		"	"	
01/12/1953	40	38	48	NW		"	"	
10/15/1954	62	57	71	S	T	"	"	
08/13/1955	42	40	50	S	T	"	"	
02/25/1956	46	43	54	W		"	"	
04/09/1957	46	43	54	N		"	"	
01/25/1958	51	48	60	NE		"	"	
01/05/1959	44	42	53	NW		"	"	
09/12/1960	60	56	70	NW	T	"	"	
12/05/1961	42	40	50	W		"	"	
12/31/1962	51	48	60	NW		"	"	
01/27/1963	43	41	51	W		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/21/1964	45	42	53	NW		"	"	
02/25/1965	43	41	51	SW		"	"	
03/01/1966	38	36	45	NW		"	"	
02/16/1967	45	42	53	SW		"	"	
03/01/1968	53	49	61	NW		"	"	
02/10/1969	42	40	50	NW		"	"	
04/02/1970	43	41	51	S		"	"	
08/28/1971	46	43	54	NE	T	"	"	
02/19/1972	43	41	51	E		"	"	
11/01/1973	51	48	60	NW		"	"	
12/02/1974	56	52	65	NE		"	"	
04/04/1975	50	47	59	NW		"	"	
02/02/1976	50	47	59	NW		"	"	
01/28/1977	46	43	54	NW		"	"	
01/24/1978	62	57	71	S		"	"	
09/06/1979	58	54	68	SE	T	"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	55
.80	5	62
.90	10	66
.95	20	70
.96	25	72
.98	50	76
.99	100	80
.995	200	84
.998	500	90
.999	1000	94

NEW YORK, NEW YORK WBO z_o=.7 WBO 1872-1960 40 43 74 00
WBAN #94706

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/14/1872	60	47	48	UNK		4c	162R	
03/29/1873	64	50	51	UNK		"	"	
04/25/1874	57	45	46	UNK		"	"	
01/09/1875	74	57	58	UNK		"	"	
03/28/1876	110	84	86	UNK		"	"	
03/09/1877	60	47	48	UNK		"	"	
01/23/1878	68	53	54	W		"	"	
01/25/1879	66	52	53	NW		"	"	
02/03/1880	60	47	48	NE		"	"	
03/30/1881	68	53	54	NE		"	"	
02/21/1882	55	43	44	NE		"	"	
08/02/1883	57	45	46	E		"	"	
09/18/1884	58	46	47	W		"	"	
01/17/1885	68	53	54	W		"	"	
02/26/1886	74	57	58	NW		"	"	
12/29/1887	59	46	47	W		"	"	
01/26/1888	73	57	58	W		"	"	
12/26/1889	60	47	48	SW		"	"	
01/22/1890	60	47	48	NW		"	"	
12/30/1891	60	47	48	NW		"	"	
03/11/1892	60	47	48	SW		"	"	
08/29/1893	60	47	48	SE	T	"	"	
10/10/1894	60	47	48	NE	T	"	"	
12/27/1895	80	62	52	W		"	326R	
03/04/1896	82	63	53	NW		"	"	
01/18/1897	72	56	47	NW		"	"	
12/04/1898	85	65	53	SE		"	350R	
03/20/1899	90	69	57	NW		"	"	
08/12/1900	85	65	53	NW		"	"	
01/19/1901	74	57	47	NW		"	"	
01/01/1902	78	60	50	NW		"	"	
07/02/1903	90	69	57	NW		"	"	
04/16/1904	88	68	56	NW		"	"	
12/10/1905	80	62	51	NW		"	"	
03/10/1906	81	62	51	W		"	"	
01/09/1907	74	57	47	W		"	"	
03/16/1908	74	57	47	NW		"	"	
04/07/1909	96	73	60	W		"	"	
12/15/1910	78	60	49	NW		"	"	
11/13/1911	82	63	50	NW		"	454R	
04/23/1912	125	95	75	NW		"	"	
03/27/1913	120	90	71	SW		"	"	
07/23/1914	125	95	75	NW		"	"	
12/26/1915	98	75	59	NW		"	"	
12/22/1916	91	70	55	NW		"	"	
12/14/1917	92	70	55	NW		"	"	
01/12/1918	95	73	58	SE		"	"	
03/28/1919	105	80	63	NW		"	"	
07/14/1920	84	65	51	W		"	"	
01/17/1921	90	69	54	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/11/1922	100	76	60	NW		"	"	
03/19/1923	86	66	52	NW		"	"	
06/25/1924	84	65	51	SW		"	"	
04/15/1925	90	69	54	NW		"	"	
01/28/1926	90	69	54	NW		"	"	
02/04/1927	81	62	48	NW		"	"	
01/25/1928	75	69	54	W		3c	"	
04/01/1929	72	66	52	NW		"	"	
04/07/1930	61	57	45	W		"	"	
12/07/1931	62	57	45	NW		"	"	
03/07/1932	84	65	51	NW		4c	"	
06/10/1933	91	70	55	NW		"	"	
12/27/1934	120	91	72	NW		"	"	
01/01/1935	96	73	58	NW		"	"	
03/22/1936	93	71	56	NW		"	"	
02/02/1937	80	62	49	NW		"	"	
09/21/1938	105	80	63	NW	T	"	"	
02/15/1939	112	85	67	SW		"	"	
07/11/1940	100	76	60	NW		"	"	
03/19/1941	76	78	61	NW		4c-x	"	
03/22/1942	72	74	58	NW		"	"	
12/11/1943	72	74	58	NW		"	"	
09/14/1944	97	99	78	N	T	"	"	
01/24/1945	73	75	59	NW		"	"	
01/19/1946	68	70	55	NW		"	"	
03/25/1947	66	68	54	W		"	"	
04/30/1948	72	66	52	NW		3c	"	
08/29/1949	76	70	55	SE	T	"	"	
01/14/1950	76	70	55	W		"	"	
12/19/1951	44	42	33	NE		"	"	
06/19/1952	103	94	74	W		"	"	
12/14/1953	74	68	54	SW		"	"	
10/15/1954	125	113	89	SE	T	"	"	
01/07/1955	66	61	48	NW		"	"	
12/18/1956	66	61	48	NW		"	"	
01/23/1957	77	71	56	NW		"	"	
11/28/1958	74	68	54	S		"	"	
01/05/1959	75	69	54	NW		"	"	
02/20/1960	70	65	51	NW		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	60
.90	10	64
.95	20	68
.96	25	70
.98	50	74
.99	100	78
.995	200	82
.998	500	87
.999	1000	91

NEW YORK - LA GUARDIA (LGA) APT z_o=.05 1947-1979 40 46 73 52
WBAN #14732

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/25/1947	68	63	55	SW		3c	83R	
10/06/1948	72	66	58	NE		"	"	
12/29/1949	60	56	49	NW		"	"	
11/25/1950	74	68	60	SE		"	"	
02/08/1951	64	59	52	NW		"	"	
11/22/1952	64	59	52	E		"	"	
11/07/1953	74	68	60	N		"	"	
10/15/1954	72	66	58	SE	T	"	"	
01/07/1955	60	56	49	W		"	"	
01/07/1956	69	64	56	N		"	"	
01/23/1957	60	56	49	NW		"	"	
01/14/1958	74	68	60	NE		"	"	
01/05/1959	68	63	55	NW		"	"	
09/12/1960	76	70	61	NE	T	"	"	
04/13/1961	64	59	52	NE		"	"	
12/31/1962	58	54	59	NW		"	20G	
04/04/1963	64	59	65	W		"	"	
01/13/1964	64	59	65	NW		"	"	
02/25/1965	39	37	40	S		"	"	
01/31/1966	55	51	56	W		"	"	
04/03/1967	51	48	53	NW		"	"	
11/12/1968	73	67	73	NE		"	"	
07/03/1969	56	52	57	N		"	"	
12/17/1970	50	47	51	E		"	"	
11/25/1971	60	56	61	NE		"	"	
11/08/1972	61	57	62	NE		"	"	
12/09/1973	42	40	44	NE		"	"	
12/02/1974	E59	55	60	NE		"	"	
01/30/1975	48	45	49	W		"	"	
08/09/1976	56	52	57	NE	T	"	"	
12/05/1977	58	54	59	NE		"	"	
12/17/1978	46	43	47	W		"	"	
09/06/1979	56	52	57	S	T	"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Type I Distribution
.50	2	55
.80	5	62
.90	10	67
.95	20	72
.96	25	73
.98	50	78
.99	100	82
.995	200	86
.998	500	92
.999	1000	97

CAPE LOOKOUT, NORTH CAROLINA WBO* z_o=.05 P_n=.46 1876-1880 34 36 76 36
FORT MACON, NORTH CAROLINA WBO* z_o=.05 P_t=.54 1881-1886 34 42 76 40

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/17/1876	80	62	58	UNK	T	4c	E50R	
09/29/1877	112	85	80	N	T	"	"	
01/31/1878	132	100	94	SE		"	"	
08/18/1879	E200	149	139	SW	T	"	"	1.
10/09/1880	115	87	81	NE		"	"	
09/09/1881	66	51	48	SE	T	"	"	
04/10/1882	66	51	48	NW		"	"	
09/10/1883	76	59	55	NE	T	"	"	
01/08/1884	90	69	65	SE		"	"	
08/25/1885	108	82	77	SW	T	"	"	
08/06/1886	83	64	60	SE		"	"	

REMARKS:

1. Estimated. Uncorrected measured 5 minute maximum speed 138 when cups lost. Estimated maximum speed 165.

Probability	Return Period (Years)	10M Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	71
.80	5	96
.90	10	110
.95	20	122
.96	25	126
.98	50	137
.99	100	146
.995	200	154
.998	500	166
.999	1000	175

HATTERAS, NORTH CAROLINA (HAT) WBO* z_o=.05 P_n=.69 1888-1970 35 15 75 40
WBAN #13745 P_t=.31

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/25/1888	80	62	61	N	T	4c	36R	
04/07/1889	114	87	86	N		"	"	
02/08/1890	72	56	55	NW		"	"	
12/30/1891	64	50	49	NW		"	"	
02/22/1892	70	54	53	N		"	"	
08/23/1893	72	56	55	N	T	"	"	
10/10/1894	62	49	48	SW	T	"	"	
12/10/1895	60	47	46	N		"	"	
10/11/1896	70	54	53	N	T	"	"	
10/24/1897	60	47	46	N	T	"	"	
04/28/1898	120	91	90	N		"	"	
08/17/1899	E150	113	111	N	T	"	"	
08/20/1900	100	76	75	NW		"	"	
07/11/1901	76	59	58	SW	T	"	"	
08/06/1902	60	47	44	W		"	50R	
10/09/1903	80	62	58	N	T	"	"	
11/13/1904	74	57	53	SW		"	"	
12/31/1905	66	51	48	N		"	"	
02/27/1906	68	53	50	N		"	"	
11/06/1907	73	57	53	W		"	"	
12/25/1908	76	59	55	W		"	"	
03/25/1909	70	54	51	NW		"	"	
01/29/1910	75	58	54	S		"	"	
03/08/1911	76	59	55	N		"	"	
11/28/1912	70	54	51	NW		"	"	
09/03/1913	92	71	66	SE	T	"	"	
02/20/1914	72	56	52	N		"	"	
12/26/1915	71	55	51	W		"	"	
06/03/1916	70	54	51	NW		"	"	
02/05/1917	72	56	52	NW		"	"	
01/15/1918	100	76	71	SW		"	"	
02/10/1919	60	47	44	NE		"	"	
11/28/1920	60	47	44	N		"	"	
12/18/1921	60	47	44	SW		"	"	
08/03/1922	70	54	51	NW		"	"	
03/07/1923	70	54	51	W		"	"	
08/25/1924	78	60	56	NW	T	"	"	
12/22/1925	70	54	51	NW		"	"	
11/16/1926	70	54	51	SE		"	"	
03/02/1927	80	62	58	NW		"	"	
11/11/1928	70	65	61	W		3c	"	
03/09/1929	56	52	49	N		"	"	
09/12/1930	62	57	53	NE	T	"	"	
06/08/1931	64	59	55	W		"	"	
03/06/1932	88	68	64	W		4c	"	
09/16/1933	E120	91	85	NW	T	"	"	
09/08/1934	96	73	68	NW	T	"	"	
08/07/1935	62	55	51	NW		4c-b	"	
09/18/1936	100	91	85	NW	T	3c	"	
01/29/1937	78	72	67	N		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/21/1938	72	66	62	NW	T	"	"	
07/14/1939	84	77	72	NW		"	"	
01/24/1940	72	66	62	NW		"	"	
05/23/1941	60	56	52	NW		"	"	
08/06/1942	64	59	55	N		"	"	
04/13/1943	52	49	46	NW		"	"	
09/14/1944	E121	110	103	W	T	"	"	
05/11/1945	60	56	52	NW		"	"	
08/12/1946	62	57	53	N		"	"	
03/28/1947	56	52	49	W		"	47R	
02/01/1948	E70	65	61	NE		"	"	
08/24/1949	80	73	69	NW	T	"	"	
03/01/1950	48	45	43	SW		"	"	
11/03/1951	50	47	44	W		"	"	
02/27/1952	54	50	47	NW		"	"	
08/13/1953	84	77	73	SE	T	"	"	
08/30/1954	78	72	68	NW	T	"	"	
09/19/1955	74	68	63	SE	T	"	56R	
02/28/1956	58	54	50	SW		"	"	
12/26/1957	46	43	40	S		"	"	
09/27/1958	75	69	69	N	T	"	32G	
1959	MISSING							
09/12/1960	78	72	72	S	T	"	"	
04/10/1961	66	61	61	SW		"	"	
03/07/1962	65	60	60	NW		"	"	
11/29/1963	56	52	52	SW		"	"	
08/31/1964	48	45	45	S	T	"	"	
02/25/1965	44	42	42	SW		"	"	
02/13/1966	63	58	58	SW		"	"	
12/28/1967	44	42	42	SW		"	"	
10/20/1968	65	60	60	NW	T	"	"	
03/09/1969	49	46	46	SW		"	"	
08/17/1970	51	48	48	SW	T	"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	54
.80	5	66
.90	10	75
.95	20	83
.96	25	85
.98	50	92
.99	100	96
.995	200	101
.998	500	107
.999	1000	111

KITTY HAWK, NORTH CAROLINA WBO* z_o=.05 P_n=.57 1875-1904 36 02 75 42
P_t=.43

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/22/1875	86	66	71	UNK		4c	E22R	
03/20/1876	84	65	70	UNK		"	"	1.
03/22/1877	96	73	78	UNK		"	"	
10/23/1878	124	94	101	SE	T	"	"	2.
08/18/1879	134	101	109	SE	T	"	"	
01/13/1880	85	65	70	N		"	"	
04/14/1881	120	91	98	NE		"	"	
12/30/1882	78	60	64	NE		"	"	
11/27/1883	80	62	67	NE		"	"	
01/08/1884	82	63	68	SE		"	"	
10/29/1885	85	65	70	SE		"	"	
05/01/1886	74	57	61	N		"	"	
08/20/1887	90	69	74	UNK	T	"	"	
11/25/1888	78	60	64	N	T	"	"	
03/19/1889	104	79	85	E		"	"	
03/08/1890	88	68	73	UNK		"	"	
10/12/1891	84	65	70	NE	T	"	22R	
02/22/1892	72	56	57	N		"	30R	
08/23/1893	80	62	63	NE	T	"	"	
09/27/1894	75	58	59	NE	T	"	"	
12/13/1895	80	62	63	N		"	"	
10/11/1896	90	69	70	NE	T	"	"	
10/24/1897	62	49	50	NE	T	"	"	
04/27/1898	100	76	77	UNK		"	"	
10/30/1899	78	60	61	UNK	T	"	"	
11/04/1900	78	60	61	UNK		"	"	
07/11/1901	97	74	75	UNK	T	"	"	
11/08/1902	84	65	66	UNK		"	"	
10/10/1903	130	98	100	UNK	T	"	"	
09/14/1904	78	60	61	UNK	T	"	"	3

REMARKS:

1. Estimated uncorrected 5 minute maximum 90 on 9/17. No estimated extreme.
2. Anemometer blown away at time of highest measured speed.
3. Ends 11/1.

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	70
.80	5	83
.90	10	92
.95	20	98
.96	25	100
.98	50	106
.99	100	112
.995	200	116
.998	500	121
.999	1000	124

MANTEO, NORTH CAROLINA WBO** $z_o=.4$ 1908-1927 35 54 75 40

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/29/1908	50	40	49	UNK		4c	42R	
1909	MISSING							
01/29/1910	40	32	39	UNK		"	"	
01/30/1911	40	32	39	UNK		"	"	
02/21/1912	60	47	58	UNK		"	"	
03/27/1913	61	48	59	UNK		"	"	
05/05/1914	46	37	45	UNK		"	"	
04/03/1915	60	47	58	UNK		"	"	
03/30/1916	70	54	66	UNK		"	"	
02/05/1917	49	39	48	UNK		"	"	
08/25/1918	60	47	58	UNK	T	"	"	
11/13/1919	45	36	44	UNK		"	"	
12/08/1920	46	37	45	UNK		"	"	
10/26/1921	44	35	43	UNK		"	"	
01/27/1922	56	44	54	UNK		"	"	
11/13/1923	40	32	39	UNK		"	"	
06/18/1924	78	60	74	UNK		"	"	
10/31/1925	84	65	80	UNK		"	"	
11/16/1926	53	42	52	UNK		"	"	
03/02/1927	68	53	65	UNK		"	"	

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	51
.80	5	63
.90	10	70
.95	20	77
.96	25	79
.98	50	86
.99	100	93
.995	200	100
.998	500	109
.999	1000	116

PORTSMOUTH, NORTH CAROLINA WBO* z_o=.05 1879-1882 35 02 76 04

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/18/1879	112	85	80	SW	T	4c	E50R	1.
06/12/1880	68	53	50	NW		"	"	
04/14/1881	128	97	91	NE		"	"	
10/12/1882	78	60	56	NE	T	"	"	

REMARKS:

1. Measured speed until Anemometer malfunction

SMITHVILLE, NORTH CAROLINA WBO* z_o=.05 P_n=.68 1876-1886 33 55 78 01
SOUTHPORT, NORTH CAROLINA WBO* z_o=.05 P_t=.32 1887-1894 33 55 78 01

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/20/1876	68	53	50	UNK		4c	E46R	
04/28/1877	71	55	52	UNK		"	"	
12/09/1878	78	60	57	S		"	"	
04/17/1879	66	51	48	S		"	"	
03/27/1880	48	38	36	SW		"	"	
09/09/1881	73	57	54	NE	T	"	"	
04/23/1882	66	51	48	SW		"	"	
09/11/1883	114	87	82	SE	T	"	"	
01/08/1884	66	51	48	SE		"	"	
08/25/1885	160	120	114	S	T	"	"	
01/09/1886	67	52	49	W		"	"	1.
07/04/1887	74	57	54	UNK		"	"	
10/11/1888	70	54	51	UNK	T	"	"	
11/17/1889	70	54	51	UNK		"	"	
02/14/1890	79	61	58	UNK		"	"	
01/22/1891	66	51	48	UNK		"	"	
06/28/1892	60	47	45	SW		"	46R	
10/13/1893	115	87	82	S	T	"	"	
09/27/1894	60	47	45	SE	T	"	"	

REMARKS:

1. Mo. 11-12 missing

Probability	Return Period (Years)	10M Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	51
.80	5	67
.90	10	85
.95	20	98
.96	25	101
.98	50	110
.99	100	119
.995	200	126
.998	500	134
.999	1000	140

WILMINGTON, NORTH CAROLINA WBO z_o=.7 P_n=.79 1872-1951 34 14 77 57
WBAN #13748 P_t=.21

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/09/1872	47	38	72	SW		4c	38R	
11/17/1873	54	43	81	NW		"	"	
09/28/1874	66	51	96	SW	T	"	"	
02/25/1875	60	47	65	SW		"	78R	
09/17/1876	72	56	78	NW	T	"	"	
03/09/1877	66	51	71	SW		"	"	
05/05/1878	70	54	75	NW		"	"	
08/18/1879	80	62	86	W	T	"	"	
03/27/1880	60	47	65	SW		"	"	
09/09/1881	104	79	119	W	T	"	63R	
02/04/1882	54	43	65	W		"	"	
09/11/1883	52	41	62	SE	T	"	"	
01/08/1884	61	48	72	SE		"	"	
08/25/1885	79	61	92	SW	T	"	"	
11/25/1886	48	38	57	SW		"	"	
12/17/1887	47	38	57	W		"	"	
10/11/1888	68	53	80	NE	T	"	"	
01/27/1889	54	43	65	SW		"	"	
03/22/1890	40	32	48	SW		"	"	
12/30/1891	50	40	53	NW		"	91R	
12/20/1892	56	44	58	SW		"	"	
10/13/1893	68	53	70	SE	T	"	"	
09/27/1894	60	47	62	NE	T	"	"	
01/26/1895	56	44	58	SW		"	"	
03/11/1896	58	46	61	SW		"	"	
04/09/1897	50	40	53	SW		"	"	
02/15/1898	60	47	62	W		"	"	
03/28/1899	60	47	62	W		"	"	
08/03/1900	50	40	53	S		"	"	
01/25/1901	50	40	53	NW		"	"	
02/02/1902	50	40	53	NW		"	"	
02/16/1903	60	47	62	W		"	"	
09/14/1904	50	40	53	SE	T	"	"	
12/20/1905	50	40	53	S		"	"	
09/16/1906	61	48	63	NE	T	"	"	
07/10/1907	60	47	62	NW		"	"	
07/30/1908	56	44	58	NE	T	"	"	
05/01/1909	50	40	53	SW		"	"	
01/21/1910	42	34	45	S		"	"	
09/11/1911	48	38	50	NW		"	"	
03/29/1912	60	47	62	SW		"	"	
03/27/1913	43	35	46	SW		"	"	
03/01/1914	46	37	49	NW		"	"	
11/18/1915	46	37	49	S		"	"	
12/12/1916	42	34	45	W		"	"	
04/08/1917	60	47	62	SW		"	"	
04/26/1918	65	51	67	NE		"	"	
07/14/1919	37	30	40	NE		"	"	
03/13/1920	50	40	53	SW		"	"	
07/09/1921	50	40	53	W		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/29/1922	50	40	53	SE		"	"	
03/07/1923	46	37	49	SW		"	"	
03/20/1924	50	40	53	NW		"	"	
11/15/1925	38	31	41	SW		"	"	
03/02/1926	48	38	50	W		"	"	
10/03/1927	33	27	36	SW	T	"	"	
01/24/1928	40	38	50	SW		3c	"	
05/02/1929	43	41	54	SW		"	"	
04/07/1930	30	29	38	SW		"	"	
03/25/1931	33	32	42	W		"	"	
03/28/1932	71	55	69	SW		4c	107R	
09/16/1933	60	47	59	NW	T	"	"	
02/25/1934	57	45	56	S		"	"	
09/05/1935	63	49	61	S	T	"	"	
01/19/1936	63	49	61	SW		"	"	
02/16/1937	46	37	46	NW		"	"	
01/25/1938	57	45	56	SW		"	"	
02/15/1939	58	46	58	SW		"	"	
02/14/1940	50	40	50	NW		"	"	
06/02/1941	58	46	58	N		"	"	
03/08/1942	56	44	55	S		"	"	
03/06/1943	72	56	70	S		"	"	
08/01/1944	67	52	65	S	T	"	"	
01/01/1945	56	44	55	SW		"	"	
02/11/1946	65	51	64	NW		"	"	
03/27/1947	60	47	59	SW		"	"	
05/17/1948	64	50	63	NW		"	"	
08/28/1949	60	47	59	S	T	"	"	
11/24/1950	52	41	51	SW		"	"	
03/30/1951	52	49	61	SW		3c	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	57
.80	5	68
.90	10	77
.95	20	87
.96	25	90
.98	50	98
.99	100	104
.995	200	108
.998	500	116
.999	1000	121

WILMINGTON, NORTH CAROLINA (ILM) APT z_o=.05 P_n=.79 1952-1979 34 16 77 55
WBAN #13748 P_t=.21

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
06/23/1952	58	54	52	N		3c	43R	
09/27/1953	53	49	47	S	T	"	"	
10/15/1954	90	82	79	SE	T	"	"	
08/11/1955	78	72	69	NE	T	"	"	
02/25/1956	72	66	63	SW		"	"	
04/05/1957	47	44	42	SW		"	"	
09/27/1958	96	88	84	N	T	"	"	
06/02/1959	48	45	43	SW	T	"	"	
09/11/1960	57	53	51	NW	T	"	"	
04/12/1961	E51	48	46	SW		"	"	1
11/26/1962	64	59	56	N		"	"	
03/06/1963	46	43	47	SW		"	20G	
01/20/1964	54	50	55	W		"	"	
04/12/1965	39	37	40	W		"	"	
02/13/1966	50	47	51	SW		"	"	
11/24/1967	48	45	49	W		"	"	
01/13/1968	38	36	39	SE		"	"	
03/09/1969	40	38	42	W		"	"	
04/02/1970	47	44	48	SW		"	"	
12/18/1971	42	40	44	NW		"	"	
02/03/1972	39	37	40	SW		"	"	
02/10/1973	44	42	46	N		"	"	
06/27/1974	40	38	42	NE		"	"	
04/19/1975	38	36	39	SW		"	"	
02/01/1976	40	38	42	SW		"	"	
04/05/1977	39	37	40	SW		"	"	
01/26/1978	51	48	53	SW		"	"	
03/24/1979	48	45	49	SE		"	"	

REMARKS:

1. Estimated

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	47
.80	5	56
.90	10	65
.95	20	73
.96	25	75
.98	50	81
.99	100	86
.995	200	90
.998	500	95
.999	1000	99

PHILADELPHIA, PENNSYLVANIA WBO z_0=.7 1873-1942 39 57 75 09
1946-1954 39 57 75 09

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/29/1873	58	46	53	S		4c	129R	
05/25/1874	61	48	55	SW		"	"	
02/25/1875	70	54	62	NW		"	"	
09/17/1876	67	52	62	SE	T	"	122R	
10/04/1877	80	62	73	SE	T	"	"	
10/23/1878	85	65	77	SE	T	"	"	
04/03/1879	72	56	66	W		"	"	
02/23/1880	67	52	62	NW		"	"	
04/02/1881	55	43	51	N		"	"	
01/22/1882	57	45	53	NW		"	"	
11/12/1883	58	46	58	W		"	107R	
06/26/1884	83	64	63	NE		"	175R	
01/17/1885	74	57	57	W		"	"	
02/26/1886	68	53	53	NW		"	"	
02/11/1887	70	54	54	NW		"	"	
03/12/1888	78	60	59	NW		"	"	
05/10/1889	72	56	56	NW		"	"	
12/17/1890	58	46	46	NE		"	"	
11/23/1891	56	44	44	SE		"	"	
09/26/1892	52	41	41	NW		"	"	
10/13/1893	75	58	58	SE	T	"	"	
04/11/1894	60	47	47	NE		"	"	
12/26/1895	60	47	47	SW		"	"	
07/27/1896	60	47	47	N		"	"	
02/22/1897	52	41	41	NE		"	"	
12/04/1898	60	47	47	SE		"	"	
02/13/1899	60	47	47	NW		"	"	
11/21/1900	54	43	43	SW		"	"	
02/05/1901	52	41	41	NW		"	"	
12/05/1902	60	47	47	N		"	"	
07/18/1903	60	47	47	S		"	"	
09/15/1904	62	49	48	N	T	"	184R	
01/25/1905	64	50	49	NE		"	"	
06/30/1906	71	55	54	NW		"	"	
12/14/1907	50	40	39	NE		"	"	
04/19/1908	50	40	39	NW		"	"	
07/16/1909	50	40	39	NW		"	"	
11/03/1910	54	43	42	N		"	"	
03/10/1911	50	40	39	NW		"	"	
04/07/1912	45	36	35	NW		"	"	
08/10/1913	60	47	46	W		"	"	
05/27/1914	58	46	44	NW		"	190R	
01/12/1915	70	54	52	NE		"	"	
04/14/1916	66	51	49	NW		"	"	
12/28/1917	60	47	45	NW		"	"	
01/12/1918	59	46	44	S		"	"	
03/29/1919	68	53	51	NW		"	"	
11/16/1920	52	41	39	NE		"	"	
09/30/1921	52	41	39	S		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/28/1922	50	40	38	N		"	"	
05/08/1923	48	38	37	SW		"	"	
03/11/1924	48	38	37	E		"	"	
10/25/1925	80	62	61	S		"	182R	
11/16/1926	56	44	43	SW		"	"	
03/02/1927	43	35	34	NE		"	"	
08/12/1928	54	50	41	NE	T	3c	341R	
01/19/1929	57	53	43	SW		"	367R	
06/26/1930	60	56	46	NW		"	"	
07/14/1931	97	88	72	N		"	"	
03/06/1932	61	57	46	NE		"	"	
05/24/1933	80	73	60	NW		"	"	
11/04/1934	52	49	40	S		"	"	
04/08/1935	55	51	42	E		"	"	
07/29/1936	59	55	45	NW		"	"	
08/11/1937	56	52	42	SW		"	"	
01/25/1938	54	50	41	S		"	"	
02/15/1939	61	57	46	SW		"	"	
07/30/1940	59	55	45	N		"	"	
07/28/1941	60	56	46	N		"	"	
03/09/1942	66	61	50	SW		"	"	
02/14/1946	34	31	33	SW		4c-b	148R	
11/03/1947	35	34	36	E		3c	"	
03/16/1948	33	32	34	SW		"	"	
06/17/1949	36	34	36	SE		"	"	
11/25/1950	62	57	61	SE		"	"	
11/07/1951	60	56	60	SE		"	"	
09/01/1952	E40	38	40	NW	T	"	"	
01/12/1953	40	38	40	NW		"	"	
10/15/1954	80	73	78	S	T	"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Type I Distribution
.50	2	48
.80	5	53
.90	10	56
.95	20	59
.96	25	60
.98	50	63
.99	100	66
.995	200	69
.998	500	73
.999	1000	76

PHILADELPHIA, PENNSYLVANIA (PHL) APT z_0=.05 1943-1945 39 53 75 15
WBAN #13739 1955-1979 39 53 75 15

Date	Measured Speed	True Speed	Speed at Standard Ht (30 Ft)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/19/1943	54	48	44	E		4c-b	57R	
04/11/1944	55	51	47	SE		3c	"	
03/31/1945	54	48	44	SW		4c-b	"	
08/13/1955	73	67	57	E	T	"	120R	
02/25/1956	64	59	50	NW		"	"	
05/26/1957	60	56	47	SW		"	"	
06/11/1958	80	73	62	NW		"	"	
01/06/1959	56	52	44	NW		"	"	
09/12/1960	52	49	54	NE	T	"	20G	
04/13/1961	41	39	43	E		"	"	
03/06/1962	51	48	53	NE		"	"	
01/27/1963	44	42	46	NW		"	"	
03/05/1964	44	42	46	SW		"	"	
02/25/1965	43	41	45	SW		"	"	
01/31/1966	40	38	42	SW		"	"	
02/16/1967	42	40	44	W		"	"	
11/12/1968	48	45	49	NE		"	"	
06/23/1969	61	57	62	NW		"	"	
04/02/1970	46	43	47	W		"	"	
03/04/1971	46	43	47	W		"	"	
08/26/1972	46	43	47	N		"	"	
03/17/1973	50	47	51	SW		"	"	
05/12/1974	42	40	44	NW		"	"	
04/03/1975	50	47	51	NW		"	"	
03/21/1976	54	50	55	NW		"	"	
08/06/1977	52	49	54	NW		"	"	
01/26/1978	49	46	50	S		"	"	
11/26/1979	54	50	55	S		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	47
.80	5	54
.90	10	59
.95	20	64
.96	25	65
.98	50	70
.99	100	74
.995	200	79
.998	500	85
.999	1000	89

READING, PENNSYLVANIA (RDG) WBO z_0=.7 1913-1968 40 20 75 58
WBAN #14767

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/08/1913	49	39	50	NW		4c	98R	
03/01/1914	56	44	57	NW		"	"	
01/12/1915	46	37	48	NE		"	"	
04/14/1916	46	37	48	NW		"	"	
04/05/1917	50	40	52	E		"	"	
02/26/1918	46	37	48	NW		"	"	
03/28/1919	54	43	55	NW		"	"	
11/28/1920	45	36	46	E		"	"	
12/18/1921	46	37	48	SW		"	"	
06/11/1922	44	35	45	NW		"	"	
03/19/1923	40	32	41	NW		"	"	
02/20/1924	42	34	44	E		"	"	
11/12/1925	50	40	52	SE		"	"	
03/31/1926	54	43	55	E		"	"	
12/16/1927	44	35	45	SE		"	"	
04/19/1928	36	34	44	SW		3c	"	
04/16/1929	38	36	46	NE		"	"	
10/17/1930	37	35	45	W		"	"	
04/01/1931	50	47	61	E		"	"	
12/31/1932	52	41	35	SW		4c	306R	
05/20/1933	125	95	80	W		"	"	
07/15/1934	80	62	52	N		"	"	
01/11/1935	78	60	51	NW		"	"	
01/19/1936	84	65	55	NE		"	"	
05/22/1937	68	53	45	SW		"	"	
12/27/1938	69	64	54	S		3c	"	
02/28/1939	63	58	49	SE		"	"	
07/27/1940	60	56	47	N		"	"	
07/02/1941	66	61	52	NW		"	"	
03/09/1942	66	61	52	S		"	"	
01/19/1943	62	57	48	NW		"	"	
04/11/1944	88	80	68	E		"	"	
04/14/1945	70	65	55	NW		"	"	
02/14/1946	60	56	47	S		"	"	
03/25/1947	60	56	47	W		"	"	
08/07/1948	58	54	46	NW		"	"	
04/06/1949	55	51	43	E		"	"	
11/25/1950	75	69	58	E		"	"	
07/09/1951	72	66	56	W		"	"	
11/21/1952	62	57	48	E		"	"	
07/02/1953	55	51	43	SW		"	"	
10/15/1954	78	72	61	SE	T	"	"	
05/29/1955	60	56	47	SW		"	"	
09/17/1956	62	57	48	NW		"	"	
05/26/1957	57	53	45	NW		"	"	
02/27/1958	52	49	41	E		"	"	
11/02/1959	60	56	47	NW		"	"	
02/25/1960	60	56	47	E		"	"	
04/16/1961	62	57	48	E		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/31/1962	70	65	55	NW		"	"	
04/04/1963	62	57	48	W		"	"	
03/10/1964	64	59	50	SE		"	"	
02/25/1965	62	57	48	E		"	"	
06/14/1966	68	63	53	W		"	"	
05/07/1967	60	56	47	E		"	"	
03/01/1968	62	57	48	NW		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Type I Distribution
.50	2	49
.80	5	54
.90	10	58
.95	20	61
.96	25	62
.98	50	66
.99	100	69
.995	200	72
.998	500	77
.999	1000	80

BLOCK ISLAND, RHODE ISLAND (BID) WBO* z_o=.05 P_n=.86 1888-1949 41 10 71 36
WBAN #14799 P_t=.14

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/26/1888	99	76	72	NE	T	4c	48R	
03/16/1889	88	68	64	NE		"	"	
12/26/1890	108	82	77	E		"	"	
10/13/1891	96	73	69	NE	T	"	"	
11/29/1892	96	73	69	NE		"	"	
02/20/1893	96	73	69	NW		"	"	
10/10/1894	100	76	72	E	T	"	"	
02/08/1895	90	69	65	W		"	"	
12/16/1896	110	84	79	NE		"	"	
02/03/1897	75	58	55	NE		"	"	
11/27/1898	E100	76	72	NE		"	"	
02/13/1899	78	60	56	N		"	"	
12/04/1900	90	69	62	E		"	70R	
11/24/1901	98	75	67	NE		"	"	
02/22/1902	90	69	62	NE		"	"	
06/12/1903	80	62	57	E		"	60R	
09/15/1904	89	68	64	NW	T	"	46R	
01/25/1905	78	60	57	N		"	"	
12/07/1906	80	62	59	NW		"	"	
11/24/1907	82	63	60	NE		"	"	
01/24/1908	80	62	59	N		"	"	
02/25/1909	88	68	64	NW		"	"	
01/14/1910	84	65	62	NE		"	"	
03/16/1911	78	60	57	W		"	"	
01/05/1912	78	60	57	NW		"	"	
01/04/1913	72	56	53	SW		"	"	
03/01/1914	90	69	65	E		"	"	
12/26/1915	90	69	65	W		"	"	
02/19/1916	76	59	56	NW		"	"	
12/14/1917	78	60	57	E		"	"	
02/05/1918	72	56	53	NW		"	"	
03/28/1919	74	57	54	NW		"	"	
11/23/1920	76	59	56	E		"	"	
11/29/1921	74	57	54	NE		"	"	
12/29/1922	75	58	55	NE		"	"	
10/23/1923	72	56	53	NE	T	"	"	
08/26/1924	82	63	60	N	T	"	"	
10/10/1925	76	59	56	NW		"	"	
01/22/1926	74	57	54	NW		"	"	
02/20/1927	78	60	57	NE		"	"	
01/25/1928	72	66	63	SW		3c	"	
01/07/1929	60	56	53	SW		"	"	
02/16/1930	68	63	60	NW		"	"	
12/07/1931	64	59	56	W		"	"	
11/10/1932	80	62	59	E		4c	"	
12/27/1933	81	62	59	NW		"	"	
12/27/1934	79	61	58	NW		"	"	
11/17/1935	85	65	62	NE		"	"	
09/19/1936	70	65	62	N	T	3c	"	
02/17/1937	53	50	47	N		"	"	

Date	Measured Speed	Time Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/21/1938	120	91	86	SE	T	"	"	
11/05/1939	72	66	63	W		"	"	
02/14/1940	64	59	56	NE		"	"	
12/15/1941	64	59	56	NW		"	"	
12/02/1942	72	66	63	W		"	"	
12/11/1943	84	77	73	NW		"	"	
09/14/1944	96	88	83	SE	T	"	"	
01/24/1945	75	69	65	NW		"	"	
02/20/1946	72	66	63	SE		"	"	
11/12/1947	82	75	71	NW		"	"	
10/24/1948	82	75	71	NE		"	"	
04/06/1949	60	56	53	SW		"	"	
03/18/1950	82	75	71	NW		"	"	

Probability	Return Period (years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	61
.80	5	67
.90	10	72
.95	20	76
.96	25	78
.98	50	82
.99	100	86
.995	200	88
.998	500	92
.999	1000	95

NEWPORT, RHODE ISLAND WBO** z_o=.4 1875-1882 41 29 71 19

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/27/1875	54	43	50	UNK		4c	E50R	1.
12/09/1876	72	56	65	UNK		"	"	
12/14/1877	62	49	57	W		"	"	
10/12/1878	67	52	60	UNK	T	"	"	
01/25/1879	60	47	54	W		"	"	
11/21/1880	50	40	46	W		"	"	
02/13/1881	50	40	46	W		"	"	
01/23/1882	60	47	54	W		"	"	

REMARKS:

1. Begins 9/75

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	53
.80	5	59
.90	10	64
.95	20	68
.96	25	69
.98	50	73
.99	100	77
.995	200	81
.998	500	87
.999	1000	91

PROVIDENCE, RHODE ISLAND WBO z_0=.7 1905-1941 41 50 71 25
WBAN #94707

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/07/1905	42	34	50	SE		4c	67R	
04/10/1906	38	31	46	E		"	"	
03/20/1907	39	32	47	W		"	"	
01/07/1908	45	36	53	E		"	"	
02/25/1909	72	56	57	NW		"	165R	
01/22/1910	60	47	48	SE		"	"	
12/28/1911	76	59	60	NW		"	"	
01/09/1912	60	47	48	N		"	"	
12/08/1913	72	56	50	W		"	251R	
01/12/1914	90	69	61	NW		"	"	
12/26/1915	90	69	61	NW		"	"	
12/23/1916	112	85	75	W		"	"	
02/10/1917	78	60	53	W		"	"	
01/15/1918	80	62	55	W		"	"	
01/24/1919	92	70	62	NW		"	"	
03/06/1920	90	69	61	NW		"	"	
11/05/1921	76	59	52	NW		"	"	
12/06/1922	92	70	62	NW		"	"	
03/28/1923	76	59	52	NW		"	"	
01/21/1924	78	60	53	NW		"	"	
10/25/1925	78	60	53	W		"	"	
01/29/1926	78	60	53	W		"	"	
04/29/1927	78	60	53	NW		"	"	
12/30/1928	78	72	64	NW		3c	"	
04/02/1929	70	65	58	NW		"	"	
04/07/1930	60	56	50	SE		"	"	
12/14/1931	54	50	44	NW		"	"	
06/23/1932	78	60	53	NW		4c	"	
02/21/1933	76	59	52	NW		"	"	
12/27/1934	72	56	50	NW		"	"	
01/04/1935	76	59	52	NW		"	"	
10/17/1936	76	59	52	SE		"	"	
10/30/1937	68	53	47	NW		"	"	
09/21/1938	126	95	84	SW	T	3c	"	
02/16/1939	60	56	50	NW		"	"	
04/06/1940	60	56	50	NW		"	"	
03/18/1941	60	56	50	NW		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distribution
.50	2	53
.80	5	59
.90	10	62
.95	20	66
.96	25	67
.98	50	70
.99	100	74
.995	200	77
.998	500	82
.999	1000	85

PROVIDENCE, RHODE ISLAND (PVD) APT z_o=.05 1942-1953 41 44 71 26
WBAN #14765

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/02/1942	67	62	57	SE		3c	60R	
12/21/1943	56	52	47	SW		"	"	
11/30/1944	60	56	51	SW		"	"	
01/01/1945	60	56	51	SW		"	"	
02/14/1946	52	49	45	SW		"	"	
04/27/1947	56	52	47	SW		"	"	
03/20/1948	44	42	38	SW		"	"	
04/06/1949	48	45	41	SW		"	"	
11/25/1950	60	56	51	SE		"	"	
11/03/1951	48	45	41	SW		"	"	
02/12/1952	48	45	41	NW		"	"	
02/21/1953	68	63	57	SW		"	"	1.

REMARKS:

1. Mo. 6-12 missing

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	46
.80	5	52
.90	10	57
.95	20	61
.96	25	62
.98	50	66
.99	100	70
.995	200	74
.998	500	79
.999	1000	83

CHARLESTON, SOUTH CAROLINA (CHS) WBO z_o=.7 P_n=.66 1872-1975 32 47 79 56
WBAN #13782 P_t=.34

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
10/23/1872	46	37	53	E	T	4c	72R	
02/12/1873	45	36	52	SW		"	"	
1874	MISSING							
03/07/1875	37	30	43	SE		"	"	
06/12/1876	55	4[illegible]	62	SE		"	"	
04/13/1877	72	56	80	NE		"	"	
09/11/1878	60	47	67	SE	T	"	"	
07/13/1879	42	34	49	NW		"	"	
10/08/1880	56	44	63	NE	T	"	"	
08/27/1881	60	47	67	NE	T	"	"	
10/11/1882	60	47	67	NE	T	"	"	
05/01/1883	48	38	54	NE		"	"	
04/02/1884	47	38	54	W		"	"	
08/25/1885	77	60	86	SE	T	"	"	
06/21/1886	50	40	57	E	T	"	"	
02/04/1887	46	37	53	E		"	"	
12/17/1888	55	43	62	SE		"	"	
04/14/1889	51	41	59	E		"	"	
07/10/1890	45	36	52	SW		"	"	
02/26/1891	50	40	57	W		"	"	
09/12/1892	45	36	52	E		"	"	
08/28/1893	120	91	130	E	T	"	"	
09/26/1894	60	47	67	NE	T	"	"	
03/20/1895	58	47	67	SW		"	"	
02/06/1896	48	38	54	W		"	"	
02/06/1897	71	55	72	SE		"	92R	
10/02/1898	67	52	68	E	T	"	"	
10/30/1899	64	50	66	NW	T	"	"	
08/17/1900	46	37	49	NE		"	"	
04/19/1901	55	44	58	SE		"	"	
12/04/1902	49	39	51	SW		"	"	
03/29/1903	62	49	64	NE		"	"	
09/14/1904	55	44	58	N	T	"	"	
12/08/1905	60	47	62	NE		"	"	
10/20/1906	72	56	74	N	T	"	"	
08/02/1907	60	47	62	N		"	"	
02/15/1908	54	43	57	S		"	"	
08/16/1909	62	49	64	NW		"	"	
10/19/1910	65	51	67	E	T	"	"	
08/27/1911	120	91	120	E	T	"	"	
04/20/1912	71	55	72	SE		"	"	
09/09/1913	65	51	67	NE		"	"	
06/09/1914	66	52	68	NE		"	"	
11/18/1915	56	44	58	SE		"	"	
07/14/1916	76	59	78	N	T	"	"	
02/05/1917	62	49	64	W		"	"	
04/08/1918	56	44	58	E		"	"	
07/14/1919	56	44	58	NE		"	"	
03/13/1920	44	35	46	W		"	"	
10/26/1921	50	40	53	NE	T	"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/30/1922	60	47	62	NE		"	"	
03/06/1923	56	44	58	W		"	"	
04/15/1924	52	41	54	E		"	"	
04/20/1925	57	45	59	NE		"	"	
03/31/1926	63	49	64	SW		"	"	
10/03/1927	70	54	71	SE	T	"	"	
09/28/1928	80	73	96	E	T	3c	"	
03/23/1929	58	54	71	SW		"	"	
01/29/1930	66	61	80	E		"	"	
03/31/1931	42	40	53	SE		"	"	
10/16/1932	72	56	74	SE		4c	"	
09/06/1933	100	76	100	SE	T	"	"	
05/28/1934	88	68	89	SE	T	"	"	
07/08/1935	78	60	79	N		"	"	
01/19/1936	62	49	64	S		"	"	
05/28/1937	56	44	58	N		"	"	
09/29/1938	80	73	96	SW		3c	"	
07/19/1939	48	45	59	NE		"	"	
08/11/1940	80	73	96	E	T	"	"	
03/14/1941	38	36	47	N		"	"	
03/02/1942	66	61	80	SE		"	"	
06/27/1943	42	40	53	SE		"	"	
10/19/1944	58	54	71	NE	T	"	"	
09/17/1945	70	65	86	E	T	"	"	
02/24/1946	56	52	68	NW		"	"	
10/15/1947	58	54	71	NE	T	"	"	
06/08/1948	42	40	53	W		"	"	
08/28/1949	60	56	74	SE	T	"	"	
10/19/1950	44	42	55	E	T	"	"	
06/09/1951	53	49	64	NW		"	"	
08/31/1952	68	63	83	SE	T	"	"	
08/01/1953	E70	65	86	N		"	"	
10/15/1954	48	45	59	NW	T	"	"	
05/11/1955	50	47	62	N		"	"	
04/10/1956	70	65	86	E		"	"	
04/01/1957	48	45	59	SE		"	"	
04/15/1958	58	54	71	E		"	"	
09/29/1959	51	48	63	NE	T	"	"	
09/11/1960	62	57	75	NW	T	"	"	
04/09/1961	52	49	64	SE		"	"	
11/22/1962	44	42	55	SW		"	"	
10/25/1963	44	42	55	NE	T	"	"	
08/29/1964	62	57	75	E	T	"	"	
10/19/1965	43	41	54	E		"	"	
02/13/1966	48	45	59	S		"	"	
09/27/1967	39	37	49	SE		"	"	
06/12/1968	90	82	108	NW	T	"	"	
11/01/1969	E54	50	66	N		"	"	
12/31/1970	67	62	82	E		"	"	
12/03/1971	50	47	62	NE		"	"	
06/19/1972	50	47	62	E	T	"	"	
05/29/1973	44	42	55	S		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/12/1974	56	52	68	SE		"	"	
01/13/1975	40	38	50	S		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	62
.80	5	78
.90	10	89
.95	20	98
.96	25	100
.98	50	107
.99	100	112
.995	200	117
.998	500	122
.999	1000	126

BROWNSVILLE, TEXAS WBO z_o=.7 P_n=.85   1878-1891   25 55   97 28
WBAN #12934 P_t=.15   1911-1942

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/26/1878	44	35	55	S		4c	E57R	
02/04/1879	42	34	53	S		"	"	
08/12/1880	70	54	85	N	T	"	"	
02/05/1881	36	30	47	S		"	"	
08/13/1882	40	32	50	S		"	"	
04/05/1883	51	41	64	S		"	"	
01/10/1884	55	43	67	S		"	"	
04/19/1885	43	35	55	NW		"	"	
09/22/1886	88	68	107	E	T	"	"	
09/21/1887	96	73	114	NW	T	"	"	
12/15/1888	49	39	61	S		"	"	
09/02/1889	60	47	74	SE		"	"	
03/31/1890	60	47	74	S		"	"	
03/03/1891	54	43	67	S		"	57R	
12/11/1911	45	36	66	UNK		"	40R	
10/16/1912	67	52	95	"	T	"	"	
02/26/1913	57	45	83	"		"	"	
02/22/1914	46	37	68	"		"	"	
05/31/1915	55	43	79	"		"	"	1
08/18/1916	70	54	99	"	T	"	"	
02/27/1917	36	30	70	"		"	26R	
02/27/1918	37	30	70	"		"	"	
05/08/1919	57	45	105	"		"	"	
03/12/1920	32	27	63	"		"	"	
11/08/1921	34	28	65	"		"	"	
11/30/1922	36	30	46	S		"	61R	
03/11/1923	44	35	53	S		"	"	
02/25/1924	36	29	44	NW		"	"	
09/07/1925	46	37	56	S	T	"	"	
10/20/1926	46	37	56	N		"	"	
04/21/1927	48	38	58	NE		"	"	
04/08/1928	31	30	46	N		3c	"	
04/25/1929	36	34	45	SE		"	90R	
10/28/1930	45	42	56	NW		"	"	
03/31/1931	36	34	45	NW		"	"	
05/16/1932	52	41	54	NW		4c	"	
09/05/1933	E140	106	138	NW	T	"	96R	
03/18/1934	58	46	60	NW		"	"	
06/04/1935	56	44	57	SE		"	"	
01/17/1936	66	51	66	S		"	"	
05/13/1937	71	55	71	NE		"	"	
03/28/1938	54	43	56	SE		"	"	
06/01/1939	58	46	60	NE		"	"	
02/17/1940	72	56	73	NW		"	"	
05/05/1941	65	51	66	N		"	"	
03/08/1942	56	44	57	N		"	"	

1. Mo 9 missing

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	60
.80	5	73
.90	10	90
.95	20	109
.96	25	112
.98	50	124
.99	100	131
.995	200	137
.998	500	146
.999	1000	151

BROWNSVILLE, TEXAS (BRO) APT z_o=.05 1943-1979 25 54 97 26
WBAN #12919

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/28/1943	40	38	35	SE		3c	56R	
04/02/1944	51	48	44	N		"	"	
08/26/1945	60	56	52	NW	T	"	"	
04/30/1946	50	47	43	E		"	"	
05/23/1947	62	57	53	SE		"	"	
03/15/1948	45	42	39	S		"	"	
04/30/1949	39	37	34	SE		"	"	
05/19/1950	50	47	43	E		"	"	
02/14/1951	40	38	35	NW		"	"	
02/25/1952	48	45	41	NW		"	"	
01/15/1953	46	43	40	S		"	"	
06/25/1954	56	52	48	E	T	"	"	
01/18/1955	44	42	39	NW		"	"	
03/07/1956	48	45	41	NW		"	"	
12/06/1957	37	35	32	S		"	"	
04/08/1958	46	43	40	SE		"	"	
04/27/1959	38	36	33	S		"	"	
04/13/1960	56	52	48	SE		"	"	
04/30/1961	E47	44	42	SE		"	43R	
05/01/1962	41	39	37	E		"	"	
11/08/1963	E42	40	38	NW		"	"	
03/09/1964	42	40	38	NW		"	"	
02/24/1965	59	55	53	NW		"	"	
11/01/1966	40	38	36	N		"	"	
09/20/1967	E75	69	66	NE	T	"	"	
05/04/1968	72	66	63	NW		"	"	
05/12/1969	64	59	56	E		"	"	
01/29/1970	38	36	34	N		"	"	
03/02/1971	48	45	43	N		"	"	
04/28/1972	50	47	51	SE		"	20G	
03/13/1973	45	42	46	SE		"	"	
04/10/1974	42	40	44	S		"	"	
05/25/1975	44	42	46	SE		"	"	
02/17/1976	40	38	42	S		"	"	
06/21/1977	48	45	49	SE		"	"	
09/10/1978	40	38	42	SE		"	"	
04/29/1979	57	52	57	NE		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	43
.80	5	50
.90	10	54
.95	20	59
.96	25	60
.98	50	65
.99	100	69
.995	200	74
.998	500	79
.999	1000	84

CORPUS CHRISTI, TEXAS WBO z_o=.7 P_n=.88 1887-1941 27 48 97 24
WBAN #12946 P_t=.12

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
07/24/1887	50	40	66	E		4c	50R	
05/23/1888	90	69	114	NE		"	"	
11/26/1889	58	46	76	NW		"	"	
05/25/1890	60	47	78	NW		"	"	
04/20/1891	70	54	89	NW		"	"	
05/31/1892	53	42	70	SE		"	"	
12/23/1893	58	46	76	S		"	"	
02/07/1894	60	47	78	SE		"	"	
05/04/1895	58	46	76	SE		"	"	
06/12/1896	46	37	61	N		"	"	
05/13/1897	60	47	78	N		"	"	
03/28/1898	46	37	61	NE		"	"	
04/05/1899	49	39	65	E		"	"	
05/15/1900	60	47	78	NE		"	"	
05/20/1901	60	47	78	NE		"	"	
02/27/1902	45	36	58	NW		"	53R	
04/24/1903	48	38	61	E		"	"	
01/21/1904	48	38	61	NW		"	"	
05/14/1905	80	62	100	NE		"	"	
06/11/1906	77	60	97	N		"	"	
05/25/1907	44	35	57	SE		"	"	
12/09/1908	60	47	66	E		"	77R	
08/27/1909	70	54	76	E	T	"	"	
09/14/1910	78	60	84	E	T	"	"	
02/14/1911	60	47	66	S		"	"	
02/12/1912	64	50	70	SE		"	"	
04/23/1913	58	46	64	SE		"	"	
10/11/1914	58	46	64	SE		"	"	
01/23/1915	56	44	62	N		"	"	
08/18/1916	E132	100	140	E	T	"	"	
04/27/1917	52	41	57	SE		"	"	
04/29/1918	70	54	76	N		"	"	
09/14/1919	E146	110	154	NE	T	"	"	
03/24/1920	60	47	66	SE		"	"	
06/22/1921	70	54	75	NE	T	"	78R	
05/09/1922	62	49	68	SE		"	"	
05/11/1923	60	47	65	S		"	"	
05/26/1924	60	47	65	SE		"	"	
03/14/1925	52	41	57	N		"	"	
02/21/1926	56	44	61	SE		"	"	
05/08/1927	70	54	75	SE		"	"	
04/04/1928	42	40	56	SE		3c	"	
01/04/1929	42	40	56	SE		"	"	
05/09/1930	50	47	65	SE		"	"	
05/20/1931	44	42	58	NW		"	"	
06/03/1932	64	50	70	S		4c	"	
09/05/1933	74	57	79	E	T	"	"	
07/25/1934	72	56	78	S	T	"	"	
05/18/1935	56	44	61	SE		"	"	
06/27/1936	59	55	77	N	T	3c	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/05/1937	48	45	63	SE		3c	78R	
03/09/1938	60	56	78	S		"	"	
05/18/1939	44	42	58	NE		"	"	
05/23/1940	50	47	65	W		"	"	
02/12/1941	44	42	58	S		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	68
.80	5	75
.90	10	89
.95	20	104
.96	25	110
.98	50	126
.99	100	139
.995	200	150
.998	500	164
.999	1000	172

CORPUS CHRISTI, TEXAS (CRP) APT z_o=.05 P_n=.76 1942-1959 27 46 97 24
WBAN #12924 P_t=.24 1960-1976 27 46 97 30

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/30/1942	78	72	73	W	T	3c	31R	
01/04/1943	64	59	60	NE		"	"	
04/09/1944	52	49	49	SE		"	"	
08/26/1945	76	70	71	N	T	"	"	
01/04/1946	54	50	50	NW		"	"	
05/20/1947	70	65	66	NW		"	"	
04/25/1948	50	47	47	N		"	"	
02/13/1949	51	48	48	SE		"	"	
03/31/1950	60	56	57	S		"	"	
05/11/1951	58	54	55	SE		"	"	
05/28/1952	54	50	50	W		"	"	
03/30/1953	48	45	45	S		"	"	
10/22/1954	49	46	46	N		"	"	
10/07/1955	E49	46	46	N		"	"	
03/07/1956	44	42	44	N		"	24G	
03/24/1957	48	45	48	W		"	"	
01/05/1958	44	42	44	NE		"	"	
12/31/1959	45	42	44	SE		"	"	
10/16/1960	44	42	45	NE		"	23G	
09/11/1961	E68	63	67	NW	T	"	"	
06/01/1962	60	56	60	SE		"	"	
04/16/1963	51	48	51	SE		"	"	
03/09/1964	48	45	48	NW		"	"	
02/24/1965	44	42	45	N		"	"	
04/14/1966	48	45	48	S		"	"	
09/20/1967	78	72	77	E	T	"	"	
05/11/1968	48	45	48	NE		"	"	
12/06/1969	44	42	45	W		"	"	
08/03/1970	E132	120	128	SW	T	"	"	
09/10/1971	72	66	70	NW	T	"	"	
04/28/1972	50	47	50	SE		"	"	
04/15/1973	46	43	46	SE		"	"	
05/26/1974	58	54	58	N		"	"	
05/24/1975	52	49	52	SE		"	"	
04/29/1976	43	41	44	N		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	50
.80	5	62
.90	10	85
.95	20	101
.96	25	105
.98	50	116
.99	100	124
.995	200	131
.998	500	139
.999	1000	145

GALVESTON, TEXAS (GLS) WBO z_o=.7 P_n=.75 1872-1979 29 18 94 48
WBAN #12944 P_t=.25

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/04/1872	48	38	49	N		4c	E96R	1.
05/27/1873	60	47	61	N		"	"	
11/27/1874	60	47	61	N		"	"	
03/06/1875	80	62	80	NW		"	"	
03/20/1876	79	61	79	UNK		"	"	
04/24/1877	86	66	86	N		"	"	
01/03/1878	54	43	56	NW		"	"	
05/06/1879	50	40	52	N		"	"	
10/16/1880	60	47	61	N		"	"	
05/25/1881	72	56	73	NE		"	"	
05/31/1882	68	53	69	NW		"	"	
03/13/1883	81	62	80	N		"	"	
02/27/1884	60	47	61	N		"	"	
01/01/1885	46	37	48	N		"	"	
10/12/1886	70	54	70	NW	T	"	"	
10/18/1887	64	50	65	N	T	"	"	
06/17/1888	70	54	70	SE	T	"	96R	
11/26/1889	66	51	66	NW		"	"	
06/06/1890	60	47	61	NE		"	"	
07/05/1891	65	51	66	SE	T	"	"	
11/17/1892	58	46	60	NW		"	"	
12/16/1893	60	47	61	N		"	"	
01/24/1894	59	46	60	NW		"	"	
01/28/1895	60	47	61	NW		"	"	
03/18/1896	48	38	49	NW		"	"	
06/03/1897	60	47	61	N		"	"	
10/16/1898	45	36	48	NW		"	88R	
11/24/1899	44	35	47	NE		"	"	
09/08/1900	100	76	101	NE	T	"	"	
10/08/1901	58	46	57	E		"	112R	
04/13/1902	60	47	58	NE		"	"	
02/16/1903	60	47	58	NW		"	"	
05/04/1904	62	49	61	E		"	"	
05/25/1905	60	47	58	N		"	"	
10/14/1906	70	54	67	SE		"	"	
10/30/1907	80	62	77	NW		"	"	
09/17/1908	88	68	84	NE	T	"	"	
07/21/1909	86	66	82	E	T	"	"	
05/23/1910	62	49	61	W		"	"	
04/26/1911	64	50	62	NE		"	"	
02/21/1912	56	44	54	NW		"	"	
03/16/1913	50	40	49	N		"	114R	
09/24/1914	46	37	45	NE		"	"	
08/17/1915	120	91	112	E	T	"	"	
07/08/1916	71	55	68	NW	T	"	"	
12/07/1917	50	40	49	NW		"	"	
01/11/1918	65	51	63	NW		"	"	
09/14/1919	60	47	58	E	T	"	"	
03/25/1920	54	43	53	NW		"	"	
06/22/1921	80	62	76	SE	T	"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/03/1922	64	50	61	W		"	"	
05/01/1923	63	49	60	SE		"	"	
05/21/1924	64	50	61	NW		"	"	
06/09/1925	52	41	50	NE		"	"	
02/18/1926	54	43	53	NW		"	"	
02/18/1927	78	60	74	N		"	"	
04/05/1928	42	40	49	W		3c	"	
04/13/1929	46	43	53	SE		"	"	
05/10/1930	42	40	49	SE		"	"	
03/06/1931	36	34	42	NW		"	"	
08/13/1932	90	69	85	SE	T	4c	"	
07/23/1933	48	38	47	S	T	"	"	
07/25/1934	64	50	61	SE	T	"	"	
03/31/1935	58	46	57	W		"	"	
04/28/1936	62	49	60	W		"	"	
06/04/1937	52	41	50	NW		"	"	
01/25/1938	58	46	57	NW		"	"	
07/09/1939	42	37	45	NW		4c-b	"	
11/11/1940	56	49	60	NW		"	"	
09/23/1941	70	61	75	S	T	"	"	
08/29/1942	50	44	54	E	T	"	"	
07/27/1943	78	68	84	NW	T	"	"	
05/02/1944	46	43	53	SW		3c	"	
08/27/1945	54	50	61	SE	T	"	"	
06/01/1946	47	44	54	NW		"	"	
08/24/1947	78	72	82	E	T	"	129R	
05/27/1948	48	45	51	W		"	"	
10/03/1949	72	66	75	SE	T	"	"	
11/03/1950	58	54	58	NW		"	143R	
08/17/1951	54	50	54	NE		"	"	
04/12/1952	60	56	61	N		"	"	
05/18/1953	65	60	65	W		"	"	
12/28/1954	54	50	54	NW		"	"	
03/21/1955	54	50	54	NW		"	"	
05/02/1956	59	55	60	W		"	"	
06/27/1957	66	61	66	N	T	"	"	
08/24/1958	46	43	47	W	T	"	"	
05/21/1959	72	66	71	W		"	"	
02/12/1960	46	43	47	NE		"	"	
09/11/1961	88	80	89	SE	T	"	136R	
12/24/1962	44	42	47	NE		"	"	
09/17/1963	54	50	63	NE	T	"	105R	
08/05/1964	50	47	59	E	T	"	"	
04/19/1965	48	45	57	NW		"	"	
04/18/1966	43	41	52	W		"	"	
10/30/1967	50	47	60	NW		"	"	
03/11/1968	44	42	53	NW		"	"	
02/14/1969	58	54	68	SE		"	"	
07/04/1970	47	44	55	NE		"	"	
09/10/1971	43	41	52	SE	T	"	"	
09/29/1972	40	38	48	NW		"	"	
09/04/1973	49	46	58	NE	T	"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
05/31/1974	36	34	43	SE		"	"	
05/08/1975	41	39	49	NW		"	"	
05/26/1976	36	34	43	SE		"	"	
11/02/1977	36	34	43	NW		"	"	
04/06/1978	44	42	53	SE		"	"	
01/20/1979	53	49	62	NW		"	"	

1. Begins 9/18

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	58
.80	5	70
.90	10	79
.95	20	86
.96	25	88
.98	50	94
.99	100	98
.995	200	102
.998	500	107
.999	1000	111

HOUSTON, TEXAS (HOU) WBO z_o=.7 P_n=.80 1910-1960 29 46 95 22
WBAN #12945 P_t=.20

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
09/14/1910	43	35	41	SE	T	4c	122R	
08/11/1911	44	35	41	NE		"	"	
02/23/1912	46	37	44	E		"	"	
06/26/1913	56	44	52	SE	T	"	"	
12/02/1914	40	32	38	SE		"	"	
08/17/1915	105	80	95	SE	T	"	"	
06/07/1916	42	34	40	N		"	"	
12/07/1917	40	32	38	NW		"	"	
12/23/1918	56	44	52	SE		"	"	
03/25/1919	48	38	45	SE		"	"	
03/25/1920	46	37	44	NW		"	"	
06/22/1921	70	54	64	SE	T	"	"	
04/08/1922	48	38	45	SE		"	"	
03/15/1923	42	34	40	NW		"	"	
03/16/1924	48	38	45	SE		"	"	
04/28/1925	44	35	41	NE		"	"	
03/30/1926	110	84	70	NW		"	314R	
04/21/1927	72	56	47	N		"	"	
04/09/1928	68	63	53	N		3c	"	
04/08/1929	52	49	41	W		"	"	
04/29/1930	50	47	39	SE		"	"	
02/16/1931	48	45	38	E		"	"	
08/13/1932	84	65	55	SE	T	4c	"	
10/22/1933	76	59	50	N		"	"	
04/19/1934	72	56	47	NW		"	"	
05/18/1935	78	60	50	SE		"	"	
01/18/1936	62	49	41	NW		"	"	
07/22/1937	56	44	37	NE		"	"	
05/06/1938	60	47	39	N		"	"	
10/20/1939	64	50	48	SE		"	190R	
10/31/1940	62	49	47	NW		"	"	
09/23/1941	86	66	64	E	T	"	"	
04/07/1942	67	52	50	SE		"	"	
07/27/1943	96	73	70	NW	T	"	"	
02/14/1944	68	53	51	SE		"	"	
08/18/1945	60	47	45	NE		"	"	
05/19/1946	66	51	49	NW		"	"	
08/10/1947	55	51	49	NE		3c	"	
04/10/1948	60	57	55	SE		"	"	
10/04/1949	70	65	63	E	T	"	"	
01/04/1950	52	49	47	N		"	"	
08/17/1951	46	43	41	E		"	"	
03/18/1952	50	47	45	NW		"	"	
10/26/1953	60	56	54	N		"	"	
10/04/1954	38	36	35	SE		"	"	
07/11/1955	60	56	54	NE		"	"	
10/03/1956	54	50	48	NE		"	"	
04/25/1957	44	42	40	SE		"	"	
08/10/1958	40	38	37	SE		"	"	
07/25/1959	52	49	47	N	T	"	"	
02/17/1960	46	43	41	NW		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	46
.80	5	55
.90	10	64
.95	20	73
.96	25	76
.98	50	83
.99	100	89
.995	200	94
.998	500	99
.999	1000	103

INDIANOLA, TEXAS WBO** Z_o=.4 1873-1885 28 32 96 30

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/18/1873	67	52	60	UNK		4c	E50R	
01/04/1874	70	54	62	UNK		"	"	
09/16/1875	112	85	98	UNK	T	"	"	
03/20/1876	80	62	72	UNK		"	"	
10/16/1877	134	101	117	NE		"	"	
02/22/1878	120	91	105	N		"	"	
04/24/1879	66	51	59	E		"	"	
08/13/1880	78	60	69	NE	T	"	"	
05/29/1881	72	56	65	N		"	"	
12/07/1882	76	59	68	N		"	"	
02/17/1883	67	52	60	N		"	"	
04/20/1884	70	54	62	N		"	"	
09/18/1885	67	52	60	NE	T	"	"	

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	71
.80	5	84
.90	10	92
.95	20	101
.96	25	103
.98	50	111
.99	100	119
.995	200	127
.998	500	138
.999	1000	146

PORT ARTHUR, TEXAS WBO $z_o=.7$ $P_n=.83$ 1917-1952 29 52 93 56
WBAN #12943 $P_t=.17$

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/17/1917	61	48	71	NW		4c	67R	
04/05/1918	73	57	84	W		"	"	
08/08/1919	60	47	69	SE		"	"	
05/16/1920	60	47	69	NW		"	"	
04/21/1921	56	44	65	SE		"	"	
12/26/1922	52	41	60	SW		"	"	
03/11/1923	44	35	52	SW		"	"	
11/20/1924	48	38	56	NW		"	"	
05/14/1925	50	40	59	NW		"	"	
03/30/1926	42	34	50	NW		"	"	
09/06/1927	52	41	60	E		"	"	
06/14/1928	44	42	62	N		3c	"	
07/09/1929	39	37	54	E		"	"	
09/15/1930	42	40	59	NW		"	"	
09/05/1931	50	47	69	E		"	"	
08/13/1932	47	38	56	NE	T	4c	"	
03/19/1933	40	32	47	NW		"	"	
04/19/1934	66	51	75	NW		"	"	
03/31/1935	44	35	52	NW		"	"	
02/04/1936	50	40	59	N		"	"	
12/16/1937	64	50	56	SE		"	134R	
05/07/1938	60	56	63	SE		3c	"	
04/16/1939	58	54	60	S		"	"	
08/07/1940	100	91	102	NE	T	"	"	
09/23/1941	80	73	82	SE	T	"	"	
08/21/1942	76	70	78	SE	T	"	"	
07/27/1943	70	65	73	SE	T	"	"	
12/04/1944	60	56	63	SE		"	"	
08/19/1945	60	56	63	SE		"	"	
01/05/1946	74	68	76	SW		"	"	
05/23/1947	58	54	60	NE		"	"	
05/11/1948	50	47	53	W		"	"	
10/04/1949	76	70	78	SE	T	"	"	
06/03/1950	66	61	68	SE		"	"	
08/17/1951	62	57	64	NE		"	"	
03/02/1952	57	53	59	SE		"	"	

Probability	Return Period (Years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	62
.80	5	73
.90	10	82
.95	20	89
.96	25	91
.98	50	97
.99	100	102
.995	200	106
.998	500	110
.999	1000	112

PORT ARTHUR, TEXAS (BPT) APT z_o=.05 1953-1978 29 57 94 01
WBAN #12917

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/03/1953	75	69	63	S		3c	57R	
04/30/1954	52	49	45	SE		"	"	
03/21/1955	54	50	46	NW		"	"	
10/20/1956	70	65	60	NW		"	"	
06/27/1957	78	72	66	NW	T	"	"	
09/15/1958	45	42	39	S		"	"	
05/21/1959	55	51	47	SW		"	"	
02/09/1960	60	56	51	SW		"	"	
04/11/1961	60	56	51	NW		"	"	
08/14/1962	60	56	51	NE		"	"	
07/26/1963	72	66	61	SW		"	"	
08/05/1964	80	73	67	E	T	"	"	
04/19/1965	65	60	55	W		"	"	
04/18/1966	65	60	55	NW		"	"	
02/06/1967	53	49	45	NE		"	"	
09/17/1968	59	55	51	SW		"	"	
02/14/1969	67	62	57	SE		"	"	
02/01/1970	52	49	45	SW		"	"	
05/09/1971	79	74	81	SW		"	20G	
05/12/1972	E56	52	57	S		"	"	
12/19/1973	52	49	54	NW		"	"	
07/27/1974	42	40	44	NE		"	"	
01/10/1975	48	45	49	NW		"	"	
10/29/1976	42	40	44	E		"	"	
11/29/1977	41	39	43	NW		"	"	
01/25/1978	36	34	37	NW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	51
.80	5	60
.90	10	66
.95	20	71
.96	25	73
.98	50	79
.99	100	84
.995	200	90
.998	500	97
.999	1000	102

CAPE HENRY, VIRGINIA WBO* z_o=.05 P_n=.78 1874-1961 36 56 76 00
WBAN #13727 P_t=.22

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
11/29/1874	78	60	60	NW		4c	E33R	
07/18/1875	84	65	65	NW		"	"	
09/17/1876	104	79	79	SE	T	"	"	
12/30/1877	112	85	85	NE		"	"	
1878	MISSING							
08/18/1879	114	87	87	NW	T	"	33R	
06/12/1880	106	81	81	NW		"	"	
04/14/1881	80	62	62	N		"	"	
11/28/1882	76	59	59	NW		"	"	
09/10/1883	67	52	52	NE	T	"	"	
02/23/1884	81	62	62	NW		"	"	
04/28/1885	76	59	59	NW		"	"	
11/06/1886	85	65	65	W		"	"	
10/31/1887	108	82	82	N	T	"	"	
03/11/1888	92	70	70	NW		"	"	
04/07/1889	156	117	117	N		"	"	
09/29/1890	66	51	51	UNK		"	"	
02/21/1891	74	57	57	UNK		"	"	
12/27/1892	78	60	60	UNK		"	"	
08/23/1893	128	97	97	N	T	"	"	
09/27/1894	80	62	62	UNK	T	"	"	
02/03/1895	67	52	52	UNK		"	"	
12/15/1896	70	54	54	UNK		"	"	
10/24/1897	72	56	56	UNK	T	"	"	
04/28/1898	82	63	63	UNK		"	"	
10/31/1899	84	65	65	NE	T	"	"	
05/04/1900	60	47	47	NW		"	"	
1901	MISSING							
08/11/1902	74	57	52	NW		"	58R	
10/10/1903	100	76	70	N	T	"	"	
01/03/1904	78	58	53	NW		"	"	
01/25/1905	66	51	47	NW		"	"	
02/27/1906	67	52	48	NW		"	"	
12/05/1907	66	51	47	NW		"	"	
01/07/1908	90	69	63	E		"	"	
01/28/1909	66	51	47	NW		"	"	
02/24/1910	60	47	43	NE		"	"	
03/15/1911	63	49	45	NW		"	"	
11/28/1912	76	59	54	N		"	"	
10/12/1913	70	54	50	N	T	"	"	
07/25/1914	78	60	55	NW		"	"	
04/03/1915	78	60	55	NW		"	"	
08/13/1916	62	49	45	NE		"	"	
06/24/1917	67	52	48	N		"	"	
06/13/1918	76	59	54	N		"	"	
12/14/1919	74	57	53	N		"	54R	
12/08/1920	76	59	55	NE		"	"	
03/28/1921	76	59	55	N		"	"	
01/28/1922	72	56	52	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/14/1923	68	53	49	N		"	"	
06/21/1924	80	62	57	NW		"	"	
03/27/1925	70	54	50	NW		"	"	
08/22/1926	74	57	53	NE		"	"	
02/19/1927	74	57	53	NE		"	"	
09/19/1928	72	66	61	NE	T	3c	"	
07/27/1929	60	56	52	N		"	"	
11/04/1930	58	54	50	NE		"	"	
07/01/1931	68	63	58	NW		"	"	
03/06/1932	62	57	53	E		"	"	
09/16/1933	114	87	81	NE	T	4c	"	
06/27/1934	80	62	57	NW		"	"	
01/23/1935	70	54	50	NE		"	"	
09/18/1936	E110	84	78	N	T	"	"	
01/29/1937	64	59	55	N		3c	"	
08/11/1938	72	66	61	NW		"	"	
08/29/1939	72	66	61	NW		"	"	
01/24/1940	70	65	60	N		"	"	
08/12/1941	64	59	55	N		"	"	
08/03/1942	62	57	53	NW		"	"	
09/30/1943	72	66	61	NW	T	"	"	
09/14/1944	148	134	124	NW	T	"	"	
06/26/1945	64	59	55	NW	T	"	"	
12/02/1946	66	61	56	NW		"	"	
02/04/1947	54	50	46	NW		"	"	
01/24/1948	66	51	47	E		"	"	
11/01/1949	56	52	48	NW		"	"	
11/20/1950	62	57	53	NW		"	"	
02/07/1951	64	59	55	NW		"	"	
10/02/1952	52	49	45	N		"	"	
08/14/1953	79	73	68	NW	T	"	"	
1954	MISSING							
08/12/1955	74	68	63	E	T	"	"	
04/12/1956	66	61	56	NE		"	"	
10/05/1957	68	63	58	NW		"	"	
06/09/1958	58	54	50	SW		"	"	
11/17/1959	52	49	54	N		"	20G	
1960	MISSING							
01/24/1961	48	45	49	N		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	56
.80	5	64
.90	10	74
.95	20	85
.96	25	89
.98	50	98
.99	100	104
.995	200	110
.998	500	116
.999	1000	120

CHINCOTEAGUE, VIRGINIA WBO* z_o=.05 1880-1886 37 55 75 23

Date	Measured Speed	True Speed	Speed at Standard Ht (10M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
12/20/1880	72	56	52	NE		4c	E50R	1.
06/29/1881	66	51	48	SW		"	"	
12/07/1882	66	51	48	NW		"	"	
07/24/1883	81	62	58	N		"	"	
02/01/1884	78	60	56	NW		"	"	
12/25/1885	90	69	65	N		"	"	
02/26/1886	84	65	61	NW		"	"	

REMARKS:

1. Begins 3/1

Probability	Return Period (Years)	10M Wind Speed (mph) Type I Distribution
.50	2	54
.80	5	61
.90	10	65
.95	20	69
.96	25	70
.98	50	74
.99	100	78
.995	200	82
.998	500	87
.999	1000	91

NORFOLK, VIRGINIA WBO z_o=.7 P_n=.86 1873-1952 36 51 76 17
WBAN #13778 P_t=.14

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
03/29/1873	61	48	69	UNK		4c	71R	
04/25/1874	61	48	69	UNK		"	"	
02/25/1875	60	47	68	SW		"	"	
09/17/1876	80	62	89	SE	T	"	"	
04/10/1877	54	43	62	NE		"	"	
09/23/1878	58	46	66	SE		"	"	
08/18/1879	86	66	95	NE	T	"	"	
02/13/1880	49	39	56	SW		"	"	
04/14/1881	54	43	62	N		"	"	
02/04/1882	50	40	59	NE		"	68R	
02/17/1883	42	34	50	N		"	"	
12/06/1884	42	34	50	S		"	"	
12/26/1885	50	40	59	N		"	"	
11/18/1886	54	43	63	SW		"	"	
10/31/1887	60	47	69	NE	T	"	"	
03/12/1888	68	53	78	NW		"	"	
04/06/1889	73	57	77	N		"	85R	
04/09/1890	60	47	62	UNK		"	93R	
02/26/1891	70	54	71	N		"	"	
05/27/1892	60	47	62	NW		"	"	
08/28/1893	60	47	62	SE	T	"	"	
05/04/1894	50	40	52	NW		"	"	
02/07/1895	52	41	54	NW		"	"	
05/19/1896	60	47	62	NW		"	"	
06/20/1897	48	38	50	NW		"	"	
02/15/1898	60	47	62	NW		"	"	
10/31/1899	60	47	58	NE	T	"	111R	
02/04/1900	65	51	63	W		"	"	
01/25/1901	55	43	53	NW		"	"	
12/05/1902	62	49	61	SW		"	"	
10/10/1903	50	40	50	N	T	"	"	
12/28/1904	60	47	58	SW		"	"	
12/21/1905	52	41	51	W		"	"	
01/04/1906	60	47	58	SW		"	"	
01/20/1907	66	51	63	SW		"	"	
01/12/1908	64	50	62	SE		"	"	
05/01/1909	84	65	81	SW		"	"	
06/21/1910	60	47	58	SE		"	"	
03/16/1911	56	44	55	NW		"	"	
02/21/1912	80	62	77	SW		"	"	
01/03/1913	80	62	58	SW		"	205R	
07/15/1914	68	53	50	W		"	"	
01/13/1915	78	60	56	NW		"	"	
06/21/1916	85	65	61	NW		"	"	
07/10/1917	75	58	54	NW		"	"	
01/12/1918	78	60	56	SE		"	"	
06/07/1919	76	59	55	NW		"	"	
04/07/1920	70	54	51	W		"	"	
08/03/1921	80	62	58	NW		"	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
04/11/1922	70	54	51	SW		"	"	
03/13/1923	60	47	44	W		"	"	
09/30/1924	76	59	55	W	T	"	"	
06/18/1925	105	80	75	W		"	"	
10/25/1926	74	57	53	SW		"	"	
05/25/1927	86	66	62	W		"	"	
09/18/1928	64	59	55	NE		3c	"	
05/19/1929	76	70	66	W		"	"	
04/07/1930	62	57	53	W		"	"	
08/19/1931	72	66	62	NW		"	"	
03/06/1932	80	62	58	W		4c	"	
09/16/1933	E98	75	70	NE	T	"	"	
04/11/1934	66	51	48	NW		"	"	
08/02/1935	50	44	51	NW		4c-b	125R	
09/18/1936	78	68	79	N	T	"	"	
01/29/1937	60	53	62	N		"	"	
01/25/1938	56	49	57	S		"	"	
07/10/1939	52	46	54	N		"	"	
02/15/1940	56	49	57	NW		"	"	
05/23/1941	47	42	49	NW		"	"	
04/11/1942	56	49	57	NW		"	"	
02/13/1943	60	53	62	NW		"	"	
09/14/1944	79	73	85	N	T	3c	"	
06/26/1945	43	41	48	N	T	"	"	
02/19/1946	48	45	52	W		"	"	
03/14/1947	50	47	55	S		"	"	
01/24/1948	56	52	61	E		"	"	
03/11/1949	39	37	43	NW		"	"	
08/16/1950	41	39	46	NW		"	"	
11/07/1951	40	38	44	SE		"	"	
03/11/1952	42	40	47	S		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	58
.80	5	67
.90	10	74
.95	20	80
.96	25	83
.98	50	88
.99	100	94
.995	200	98
.998	500	102
.999	1000	106

NORFOLK, VIRGINIA (ORF) APT P_n=.75 1953-1972 36 54 76 12
WBAN #13737 P_t=.25

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
08/14/1953	68	63	56	NE	T	3c	78R	
10/15/1954	85	78	69	S	T	"	"	
03/22/1955	58	54	48	W		"	"	
07/09/1956	68	63	56	SW		"	"	
09/04/1957	64	59	52	S		"	"	
08/13/1958	51	48	42	S		"	"	
01/22/1959	60	56	49	SW		"	"	
09/12/1960	79	73	64	W	T	"	"	
02/25/1961	48	45	40	SW		"	"	
11/08/1962	56	52	46	SE		"	"	
03/06/1963	62	57	50	W		"	"	
09/13/1964	68	63	56	NE	T	"	"	
02/25/1965	72	66	58	SW		"	"	
02/13/1966	48	45	40	SW		"	"	
03/07/1967	45	42	37	W		"	"	
05/27/1968	56	52	46	SE		"	"	
03/01/1969	42	40	35	N		"	"	
06/21/1970	56	52	46	W		"	"	
08/27/1971	56	52	46	NE	T	"	"	
02/03/1972	51	48	42	SW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Mixed Distribution (Type I & Weibull)
.50	2	47
.80	5	57
.90	10	62
.95	20	66
.96	25	67
.98	50	70
.99	100	73
.995	200	76
.998	500	79
.999	1000	82

RICHMOND, VIRGINIA WBO z_0=.7 1898-1950 37 32 77 25
WBAN #13780

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
01/23/1898	45	36	45	SW		4c	107R	
03/12/1899	46	37	46	SE		"	"	
06/14/1900	50	40	53	NW		"	92R	
09/15/1901	39	32	42	SW		"	"	
04/26/1902	42	34	45	SW		"	"	
02/28/1903	39	32	42	SW		"	"	
06/21/1904	44	35	46	SW		"	"	
11/29/1905	56	44	46	S		"	154R	
01/04/1906	61	48	50	S		"	"	
12/23/1907	65	51	53	S		"	"	
03/15/1908	66	51	53	NW		"	"	
02/10/1909	78	60	63	SW		"	"	
02/04/1910	46	37	60	NW		"	53R	
09/12/1911	60	47	76	NW		"	"	
02/22/1912	66	51	82	SW		"	"	
01/03/1913	81	62	100	SW		"	"	
01/31/1914	66	51	82	SW		"	"	
08/01/1915	60	47	76	NW		"	"	
04/21/1916	56	44	71	SW		"	"	
06/24/1917	68	53	86	NW		"	"	
01/12/1918	66	51	82	SW		"	"	
03/27/1919	50	40	65	NW		"	"	
11/17/1920	60	47	76	SW		"	"	
06/23/1921	50	40	65	W		"	"	
04/11/1922	60	47	76	SW		"	"	
03/12/1923	46	37	60	SW		"	"	
06/18/1924	54	43	70	NW		"	"	
10/25/1925	54	43	70	SW		"	"	
03/31/1926	62	49	79	SW		"	"	
05/25/1927	54	43	70	NW		"	"	
03/30/1928	53	50	81	W		3c	"	
03/07/1929	50	47	76	NW		"	"	
03/07/1930	53	50	81	S		"	"	
05/09/1931	48	45	73	W		"	"	
03/06/1932	60	47	76	N		4c	"	
05/26/1933	64	50	81	NW		"	"	
04/24/1934	64	50	81	W		"	"	
08/02/1935	46	37	60	NW		"	"	
01/23/1936	56	44	71	NW		"	"	
04/22/1937	48	38	61	SW		"	"	
05/23/1938	62	49	79	W		"	"	
02/15/1939	46	37	60	SW		"	"	
02/14/1940	44	35	57	NW		"	"	
08/12/1941	54	43	70	NW		"	"	
03/09/1942	66	51	82	W		"	"	
04/13/1943	80	62	100	W		"	"	
12/12/1944	58	46	74	SW		"	"	
03/21/1945	60	47	76	SW		"	"	
06/09/1946	50	40	65	NW		"	"	
03/25/1947	52	46	74	SW		4c-b	"	

Date	Measured Speed	True Speed	Speed at Standard Ht (30 M)	Direction	Storm Type	Anem Type	Anem Ht	Remarks
02/14/1948	52	46	74	SW		"	"	
04/15/1949	44	39	63	SW		"	"	
03/08/1950	42	37	60	SW		"	"	

Probability	Return Period (years)	30m Wind Speed (mph) Type I Distritution
.50	2	66
.80	5	76
.90	10	82
.95	20	88
.96	25	90
.98	50	95
.99	100	101
.995	200	107
.998	500	114
.999	1000	120

RICHMOND, VIRGINIA (RIC) APT z_o=.05 1951-1979 37 30 77 20
WBAN #13740

Date	Measured Speed	True Speed	Speed at Standard Ht (10 M)	Dircction	Storm Type	.Anem Type	Anem Ht	Remarks
02/01/1951	48	45	41	SW		3c	66R	
06/29/1952	56	52	47	NW		"	"	
06/09/1953	35	34	31	NW		"	"	
10/15/1954	74	68	61	SE	T	"	"	
07/23/1955	60	56	50	NW		"	"	
05/23/1956	44	39	35	SW		"	"	
06/28/1957	54	50	45	S	T	"	"	
01/25/1958	41	39	35	E		"	"	
01/21/1959	42	40	36	S		"	"	
12/12/1960	40	38	34	NW		"	"	
02/25/1961	40	38	42	SW		"	20G	
05/08/1962	48	45	49	N		"	"	
03/06/1963	39	37	40	W		"	"	
03/10/1964	42	40	44	SW		"	"	
06/30/1965	37	35	38	N		"	"	
02/13/1966	42	40	44	SW		"	"	
07/20/1967	40	38	42	SW		"	"	
12/28/1968	42	40	44	SW		"	"	
06/18/1969	36	34	37	N		"	"	
04/02/1970	38	36	39	W		"	"	
01/26/1971	46	43	47	NW		"	"	
04/15/1972	42	40	44	NW		"	"	
07/11/1973	50	47	51	NW		"	"	
03/16/1974	37	35	38	SW		"	"	
01/01/1975	42	40	44	NW		"	"	
03/13/1976	36	34	37	W		"	"	
11/17/1977	40	38	42	NW		"	"	
01/26/1978	44	42	46	SW		"	"	
08/08/1979	46	43	47	NW		"	"	

Probability	Return Period (Years)	10m Wind Speed (mph) Type I Distribution
.50	2	41
.80	5	47
.90	10	51
.95	20	54
.96	25	55
.98	50	59
.99	100	62
.995	200	65
.998	500	70
.999	1000	73

VIII. SUMMARY

Historical extreme winds were extracted for all available locations along the Atlantic and Gulf of Mexico coastlines. Station exposures were categorized into four possible types and the logarithmic law used to standardize wind speeds to 30 meters for city locations and 10 meters for airport-type exposures. Type I and Weibull extreme value models were utilized in developing probability estimates for non-tropical and tropical storms, respectively. For locations with a minimum of five tropical storms in the period of record, a mixed distribution was determined. Although many locations' data set contained an unrepresentatively small number of annual values, the overall results confirm existing analyses for airport locations. The period of record dependency of return period estimates exemplifies the need for a long-period site data collection.

IX. ACKNOWLEDGEMENTS

The author wishes to thank Phyllis Taylor and the Information Management Section for their efforts in typing the manuscript and data listings, respectively. Joan Brown extracted and verified the fastest mile data presented, and Robert Courtney prepared the graphics.

References

1. Batts, M. E., Cordes, M. R., Russell, L. R., Shaver, J. R., and Simiu, E., "Hurricane Wind Speeds in the United States," NBS Building Science Series 124, May 1980.

2. Csanady, G. T., "On the Resistance Law of a Turbulent Ekman Layer," Journal of the Atmospheric Sciences, Vol. 24, September 1967, pp. 467-471.

3. Gumbel, E. J., Statistics of Extremes, Columbia University Press, New York, NY, 1958.

4. Gumbel, E. J. and Lieblein, J., "Some Applications of Extreme Value Methods," American Statistician, Vol. 8, No. 14, 1954.

5. Lieblein, J., "A New Method of Analyzing Extreme Value Data," Technical Note 3053, National Advisory Committee for Aeronautics, Washington, DC, 1954.

6. Lieblein, J., "Efficient Methods of Extreme Value Methodology," NBSIR 74-602, National Bureau of Standards, 1974.

7. Lieblein, J., "Note on Simplified Estimators for the Type I Extreme Value Distribution, NBSIR 75-637, National Bureau of Standards, 1974.

8. Marvin, C. F., "A Rational Theory of the Cup Anemometer," Monthly Weather Review, Vol. 60, No. 2, February 1932, pp. 43-57.

9. Marvin, C. F., "Recent Advances in Anemometry," Monthly Weather Review, Vol. 62, No. 4, April 1934, pp. 115-120.

10. Neumann, C., Cry, G., Caso, E., and Jarvinen, B., Tropical Cyclones of the North Atlantic Ocean, 1871-1980, U.S. Department of Commerce, NOAA, July 1981.

11. Pasquill, F., "Wind Structure in the Atmospheric Boundary Layer," Philosophical Transactions of the Royal Society of London, A. 269, 1971, pp. 439-456.

12. Simiu, E., "Logarithmic Profiles and Design Wind Speeds," Journal of the Engineering Mechanics Division, ASCE, Vol. 99, No. EM5, proc. paper 10100, October 1973, pp. 1073-1083.

13. Simiu, E. and Lozier, D. W., "The Buffeting of Tall Structures by Strong Winds," NBS Building Science Series 74, National Bureau of Standards, October 1975.

14. Simiu, E., Bietry, J., and Filliben, J. J., "Sampling Errors in Estimation of Extreme Wind Speeds," Journal of the Structural Division, ASCE, March 1978, pp. 491-501.

15. Simiu, E., Changery, M. J., and Filliben, J. J., "Extreme Wind Speeds at 129 Stations in the Contiguous United States," NBS Building Science Series 118, National Bureau of Standards, March 1979.

16. Thom, H. C. S., "Distribution of Extreme Winds in the United States," Journal of the Structural Division, ASCE, Vol. 86, No. ST4, April 1960, pp. 11-24.

17. Thom, H. C. S., "Now Distributions of Extreme Winds in the United States," Journal of the Structural Division, ASCE, Vol. 94, No. ST7, July 1968, pp. 1787-1801.

18. Thom, H. C. S., "Distributions of Extreme Winds Over Oceans," Journal of the Waterways, Harbors and Coastal Engineering Division, ASCE, Vol. 99, No. WW1, proc. paper 9556, February 1973.

19. U.S. Department of Commerce, Northern Hemisphere Sea-Level and 500-Millibar Charts, National Oceanic and Atmospheric Administration (published monthly for 1899-1972).

NRC FORM 335
(11-81)

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER *(Assigned by DDC)*
NUREG/CR-2639

4. TITLE AND SUBTITLE *(Add Volume No., if appropriate)*
Historical Extreme Winds for the United States - Atlantic and Gulf of Mexico Coastlines

2. *(Leave blank)*

3. RECIPIENT'S ACCESSION NO.

7. AUTHOR(S)
M.J. Changery

5. DATE REPORT COMPLETED
MONTH April | YEAR 1982

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS *(Include Zip Code)*
National Climatic Center
National Oceanic and Atmospheric Administration
Federal Building
Asheville, NC 28801

DATE REPORT ISSUED
MONTH May | YEAR 1982

6. *(Leave blank)*

8. *(Leave blank)*

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS *(Include Zip Code)*
Division of Health, Siting and Waste Management
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

10. PROJECT/TASK/WORK UNIT NO.

11. FIN NO.
FIN B1031

13. TYPE OF REPORT

PERIOD COVERED *(Inclusive dates)*

15. SUPPLEMENTARY NOTES

14. *(Leave blank)*

16. ABSTRACT *(200 words or less)*

Annual fastest mile wind data were extracted for the complete period of record for 53 locations along the Atlantic and Gulf of Mexico coastlines. Existing models were used to standardize the data to 10 meters for airport-type exposures and 30 meters for city exposures. Selected probability estimates were developed from application of the Fisher-Tippett Type I extreme value model for non-tropical storms and the Weibull model for tropical storms. A mixed distribution was used for locations with a significant percentage of annual extremes caused by tropical storms.

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT
Unlimited

19. SECURITY CLASS *(This report)*
Unclassified

20. SECURITY CLASS *(This page)*
Unclassified

21. NO. OF PAGES

22. PRICE
S

NRC FORM 335 (11-81)

BEST DOCUMENT AVAILABLE

153